PROFESSIONAL LEARNING AND DEVELOPMENT IN HOME-BASED EARLY CHILDHOOD EDUCATION AND CARE: EXPLORING THE BENEFITS FOR EDUCATOR-CHILD SHARED TALK AND CHILDREN'S SOCIAL-EMOTIONAL AND SELF-REGULATORY DEVELOPMENT

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Abstract

Research shows that parent-child reminiscing conversations (shared talk about past events) impart benefits for children's development across a range of domains. To date, there is limited research investigating whether reminiscing outside of parent-child context exerts similar benefits for children's development. The current thesis sought to explore how participation in professional learning and development in home-based early childhood education and care (ECEC) impacted educators' and children's internal state (cognitive and emotion) language use during an educator-child reminiscing task and children's social-emotional and self-regulatory development. In this study 17 educators and 21 children participated in at least one and up to three modules designed to support educators' delivery of ECEC and promote children's development. Results were analysed using a combination of visual observation methods, and statistical analyses were conducted to strengthen the conclusions drawn from findings. Overall results for educators' and children's language during reminiscing were inconsistent, although there was some evidence to suggest that participation in two or more modules may have promoted educators' and children's use of internal state language. Moreover, children who participated in the Rich Reading and Reminiscing (RRR) module demonstrated differential improvement on some measures of social-emotional and self-regulatory competence, which was evident up to two years following participation. Findings suggest that participation in RRR, which includes a reminiscing component, in home-based ECEC contexts may exert specific benefits for children's social-emotional and self-regulatory development. Results are discussed in reference to past research on reminiscing and implications for children's early learning and development in ECEC settings.

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A wealth of evidence has demonstrated that the early years are a crucial period for growth and development. The first years of life are characterized by rapid changes, and the mastery of developmental milestones sets the stage for what will follow (Salmon & Reese, 2016). Research has linked skills in early childhood with numerous long-term outcomes, including school achievement, home ownership, physical health status, and overall adjustment (Chetty et al., 2011; Heckman, 2006; Moffitt et al., 2011; Shonkoff & Phillips, 2000). Thus, the importance of maximising children's learning and developmental opportunities cannot be understated. This thesis presents an applied study in which children's developmental outcomes were evaluated before and following their engagement in professional learning modules alongside their home-based early childhood educators. The relations between the interactions these educators share with the children in their care, and children's developing social-emotional and self-regulation competency are examined; with a specific focus on how reminiscing (shared talk about past events) at pre-school age impacted children's social emotional and self-regulatory capacity up to one year after starting primary school.

1.1 Early Childhood Education and Care (ECEC)

ECEC providers in New Zealand (NZ) are becoming increasingly involved in and responsible for children's learning and development (Educationcounts.govt.nz, 2017; Educationcounts.govt.nz, 2018). Home-based ECEC is distinct from what many might stereotype as 'pre-school care' in that it is not delivered to large groups of children in a centre that closely resembles the school setting (Paulsell et al., 2010). Rather, home-based ECEC is typically delivered in an educator's home that provides a family-like setting, to small mixed-age groupings of children (Forry et al., 2012). These features are theoretically advantageous as the provision of care is in a setting familiar to the child, there is increased familiarity with educators and fellow children, which often leads families to have greater trust in educators' abilities to attend to their children's needs (Groeneveld et al., 2011; Smith, 2006; Tonyan,

Paulsell, & Shivers, 2017). Furthermore, the NZ Ministry of Education may subsidise the cost of licensed home-based ECEC for up to six hours a day, 20 hours a week, making it even more affordable for parents (Parents.education.govt.nz, 2016). Perhaps most importantly, child-educator ratios are lower than those typically observed in centre-based ECEC settings, which provides more opportunities for sustained and sensitive interactions that promote secure attachment between educators and children (Ahnert, Pinquart, & Lamb, 2006). The quality of educator-child interactions is an important predictor of children's developmental outcomes across domains (Yelverton & Mashburn, 2018). Therefore, home-based ECEC settings possess immense potential for providing quality care that promotes children's learning and development.

However, home-based ECEC educators must navigate a range of unique challenges to delivering quality care daily. These include potential isolation from other home-based educators and visiting teachers (fully registered teachers responsible for co-ordinating a network of home-based educators and their delivery of ECEC to young children), limited access to resources and training, and the difficulty of balancing the needs of the business and services they provide and those of the children in their care (Porter et al., 2010; Schaughency et al., 2016). Furthermore, there is a lack of evidence on how these challenges should be navigated, which compounds the difficulties that educators face (Gest et al., 2006; Tonyan et al., 2017). Overall, there is a lack of research to substantiate the quality of care in home-based ECEC, the effectiveness of quality improvement strategies, the relationships between home-based educators and children, and the impact these relationships have on children's developmental outcomes over time (Bromer, McCabe, & Porter, 2013). As such, it is crucial that research explores how home-based educators can best be supported to deliver evidence-based care (Bromer & Korfmacher, 2017; Darling-Hammond, 2012).

Evidence to date overwhelmingly suggests that children are best supported in contexts that provide emotionally supportive interactions (Howes et al., 2008; Mashburn et al., 2008). When identifying the types of contexts that promote learning and development, it is vital to consider the social environment in which the child participates in activities, relationships and roles with others (Hamre et al., 2013; Mashburn & Pianta, 2006). When the social environment is characterised by warm, friendly, and nurturing interactions and caregivers (i.e., parents or educators) express consistent behaviours and emotions, children can explore the world in such a way that promotes development across multiple domains (Salmon & Reese, 2016; Yelverton & Mashburn 2018). Additionally, responsible caregivers provide children with a safe base to return to, which eventually leads to learning opportunities through shared conversations that may facilitate other types of knowledge (Epinosa, 2002). As such, the quality of the educator-child interaction is central to the quality of support and care provided by ECEC settings (Markussen-Brown et al., 2017).

There are many characteristics or attributes that assist early childhood educators to establish positive interactions. Educators who are emotionally sensitive and responsive, and provide high-quality, predictable interactions are of most benefit to the children they provide care for (Mashburn et al., 2008; Hamre et al., 2013). Moreover, children seem to gain most from positive interactions that are sustained over time and gradually scaffolded to become increasingly complex to match the child's development level (Claessens & Garrett, 2014; Curby, Brock, & Hamre, 2013). Therefore, those aiming to make a positive impact on children's learning should seek to support the practice of educators (and other adults) that a child encounters throughout the day (Kagan & Kauerz, 2007). Influencing home-based educators' capacity to provide in-the-moment emotionally, organizationally, and instructively supportive supervision may help to improve children's learning (Yelverton & Mashburn, 2018).

1.2 Social-Emotional Development

Children's interactions and experiences with others, objects, and activities during the early years serves as a catalyst for developmental gains across domains (McClelland et al., 2007a; Morris et al., 2007; Salmon & Reese, 2016; Vygotsky, 1978). One of the core developmental competencies involves the mastery of social and emotional understanding and reasoning. While parents, teachers, and researchers alike generally agree that social and emotional competence is important for young children, there is scarce agreement on how to define and measure the term (Barblett & Maloney, 2010). A broad definition of social-emotional competence is the child's experience, expression, and management of emotions; alongside the ability to interact with others and establish and maintain positive, rewarding relationships (Barblett & Maloney, 2010; Denham, 2006). The Collaborative for Academic, Social and Emotional Learning (CASEL, 2003) outline five foundational social-emotional competencies for young people's well-being: self-awareness, social awareness, self-management, relationship skills, and responsible decision-making. Well-developed understanding of emotions may enhance effective coping by providing children with knowledge about the causes and consequences of specific situations, and the associated behavioural actions that lead to resolution (Barret, Gross, Christensen, & Benvenuto, 2001; Wang et al., 2006). Therefore, children who have a more comprehensive emotion knowledge may be better at recognizing ways of enhancing positive experiences and reducing the experiences that typically elicit negative emotions (Yang & Wang, 2016).

A significant body of research has supported the positive impact of social-emotional development on overall growth and wellbeing. Children with well-developed social-emotional abilities are more likely to establish positive and enduring relationships with teachers and peers, achieve more academically, self-report feeling more positive about school, and overall participate in school more (Denham, 2006; Domitrovich, Cortes, &

Greenberg, 2007). Researchers argue that the explicit promotion of social-emotional learning exerts important downstream effects on intellectual abilities and ethical decision making (including the ability to navigate conflict resolution) (Devaney, O'Brien, Tavegia, & Resnik 2005). Importantly, social-emotional skills are consistently rated by early childhood educators as more important for kindergarten readiness than knowledge of academic concepts (Abry, Latham, Bassok, & LoCasale-Crouch, 2015; Lin, Lawrence, & Gorrell, 2003). Other research has shown that those with better-developed social-emotional skills have higher ratings of acceptance by both their classmates and teachers, and receive more positive feedback from teachers (Domitrovich et al., 2007).

Conversely, children with poorly developed social-emotional skills often have difficulty communicating their needs, relating to others, and creating friendships with their peers (Gagnon et al., 1995; Kochenderfer, & Ladd 1996). These children are observed to display greater emotional instability, a lower tolerance for frustration, and emotional outbursts to a diverse range of small and large triggers (Zimmer-Gembeck et al., 2015). Moreover, children unable to constructively regulate their emotions have an increased probability of experiencing high levels of stress in the classroom, which can negatively affect their ability to learn (Blair & Diamond, 2008; Blair & Raver, 2014). Critically, the greater the delay in developing age-appropriate techniques for regulating one's emotions, the more difficult it can be to intervene and remediate a child's difficulties (Kochenderfer & Ladd, 1996).

Social-emotional skills early in childhood also have consequences that last long beyond kindergarten. In a sample of close to 4,500 (predominantly French-speaking) Canadian children, Vitaro et al. (2005) found that children's social skills as measured in kindergarten (North American definitions of 'kindergarten age' typically means five to six years old - similar to Year 1 in New Zealand), related to their likelihood of graduating high

school. As well, research in both American and New Zealand samples has found that preschool and young school-age children with better social communication skills had better employment outcomes, mental health status, lower substance use rates, and engaged in less criminal activity as young adults (Jones, Greenberg, & Crowley, 2015; Moffitt et al., 2011). In contrast, poor social skills in the first year of school are associated with ongoing conduct problems, increased shyness, and higher anxiety through to early adolescence (Hamre & Pianta, 2001). Further, young children with fewer friendships may be at risk for emotion regulation deficits, and a range of mood disorders later in life (Vandell, Nenide, & Van Winkle, 2006). In order to prevent detrimental downstream effects later in life, children's social-emotional learning and development must be prioritized from an early age.

Investigation into how social-emotional skills develop shows that early experiences are critically important. Early social-emotional development is heavily reliant on secure attachment to a caregiver, across cultures (Bowlby, 1969; Friedlmeier, Corapci, Cole, 2011). If a caregiver is responsive, sensitive, and nurturing, their child is more likely to turn to them in times of distress; to accept help, reassurance, and advice from them; and to be calmed and comforted more easily (Bowlby, 1969; Morris et al., 2007). Effective caregivers can model appropriate emotion regulation techniques, and resolve conflicts that the child might not yet be able to, hence their label as "emotion coaches" (Tronik, 2007). With time children become more attuned to responding to their own and others feelings and behaviours, which then strengthens relationships.

Shared language with others also provides experiences through which social-emotional competence may develop. The mastery of basic language principles allows children to learn not only through observation but through discussions with others (Vallotton & Ayoub 2011). Researchers postulate it is through shared language that children might develop insight and understanding of concepts that are not necessarily tangible such as rules,

morals, and perspectives (Cole, Pemberton, & Armstrong, 2010). Furthermore, the ability to talk with others leads to an enriched understanding of inner feelings, and also comprehension that others can share similar, or different emotion states (Barblett & Maloney, 2010; Morris et al., 2007). As they attempt to understand the emotions of others, children build skills and abilities that connect them with family, educators, teachers, and peers (Farrar, Goldfield, & Moore 2007). Over time children become capable of handling progressively complex social situations and can interact more effectively with others (Turney & McLanahan, 2015). Thus, young children with well-developed language skills can better access social support from others and reap the benefits for growth and learning (Ashdown & Bernard, 2012).

Interactions within the wider social environment, but outside of the home context, also provide rich and complex learning opportunities for pre-schoolers (Mashburn & Pianta, 2006). As children make the transition into alternative early-childhood settings they must begin to navigate a more complicated social environment (Bierman et al., 2008). Emotionally supportive, well-organized, and instructionally supportive social interactions in preschool classrooms positively impact young children's development of social-emotional skills (Hamre et al., 2013). Across a sample of 671 pre-kindergarten classrooms and almost 2,500 children aged four years old, Mashburn et al. (2008) found that emotionally supportive classroom interactions (e.g., a 'positive' climate with high responsivity to children's emotional needs) were positively associated with children's development of social-emotional skills. Furthermore, instructionally supportive classroom interactions (e.g., a dedication to the modelling of increasingly complex language and other concepts) were positively associated with children's development of literacy, math, and language skills within one year at preschool.

Research on social-emotional learning (SEL) programmes in Early Childhood Education and Care (ECEC) settings examines the effects of classroom curricula that

integrate activities and exercises to strengthen children's behavioural, emotional, and prosocial self-regulation. The available evidence to date indicates a multitude of short-term and long-term benefits of these programmes, including a more positive classroom climate, improved peer relationships, and better learning of academic material (Denham 2006; Domitrovich, Cortes, & Greenberg, 2007; Durlak et al., 2011; Zins & Elias, 2007). However, researchers also highlight that to maximise the benefits of SEL programmes, a more comprehensive and in-depth understanding of what aspects of social-emotional competency are responsive to targeted curriculum is necessary (Yelverton & Mashburn, 2018).

1.3 Self-Regulation Development

The ability to regulate one's behaviour is a hallmark of development during early childhood. From an early age children are expected to develop an awareness of their behaviour, an understanding of appropriate rules for behaviour; and skills with initiating, maintaining, and ceasing behaviour as required (McClelland, Morrison & Holmes, 2000). Children's self-regulation capacity plays a key role in enabling these processes to occur. Although disagreement exists as to how to define self-regulation, a general definition involves the ability to volitionally suppress a (dominant) self-driven behavioural or emotional response, in favour of performing a less-desirable response (Kochanska, Murray, & Harlan, 2000). Children with well-developed self-regulation skills can compare intrinsically-motivated behaviour (e.g., drawing on a wall) with extrinsically-motivated behaviour (e.g., searching for a piece of paper to draw on to avoid reprimand), and the more beneficial behaviour can be selected (Murray & Kochanska, 2002). With practice, self-regulation principles may be internalized into in-the-moment decision making, and so a children's choice of behaviour becomes increasingly autonomous (and hopefully appropriate), and less directed attention and energy is needed (Kochanska, Coy, & Murray, 2001).

Numerous studies have revealed an association between children's self-regulation and a plethora of outcomes including school readiness, positive early learning experiences, learning capacity, academic achievement, overall education attainment, and general health and wellbeing. (Blair & Razza, 2007; Cameron Ponitz et al., 2009; Duckworth, Tsukayama, & May, 2010; Foulks & Morrow, 1989; McClelland et al., 2007a; McClelland et al., 2013; McClelland, Acock, & Morrison, 2006; Moffitt et al., 2011; Rimm-Kaufman, Pianta, & Cox, 2000; Sektnan, McClelland, Acock, & Morrison, 2010). Research has shown self-regulation contributes to overall achievement when initial achievement levels and demographic variables such as child age, early IQ, ethnicity, and parental education are controlled for (Duncan et al., 2007; Suchodoletz et al., 2009).

Well-developed self-regulation competence allows children to formulate appropriate strategies dealing with people, objects, and rules, and to eventually devise internal morals that can be generalized throughout daily life (Blair & Diamond, 2008). Moreover, surfacing self-regulatory capacities serve three fundamental, but diverse purposes at school. First, they enable children to "behave" in line with teachers' requests for attention, engagement and classroom or school rules (Ursache, Blair, & Raver, 2012). Second, they allow children to interact in socially appropriate ways with others, to manage relationships with peers, and to use prosocial methods of resolving disagreements and conflict (Bronson, 2000). Third, they provide a shift in the development of children's coping, so that instead of relying on maladaptive or immature ways of coping, they can increasingly utilize independent and constructive strategies to deal with challenges, frustrations, and failures (Skinner & Zimmer-Gembeck, 2016).

Children who develop effective self-regulation skills have a sizeable advantage over those who do not (Kochanska et al., 2001). Preschool-aged children who exhibit difficulties regulating their behaviour are at greater risk for emotional and conduct problems, low

academic attainment, and withdrawal from school throughout childhood and adolescence (Duncan et al., 2007; Eisenberg et al., 2000; Shaw, Gilliom, Ingoldsby, & Nagin, 2003). Additionally, the association between early disruptive behaviour and later school failure remains, even when intellectual ability or family socio-economic status are controlled for (Rumberger, 1995; Vitaro et al., 2001). Adults who do not complete high school education are more likely to receive social welfare assistance, have an increased likelihood of experiencing physical and mental health problems (including substance abuse), and engaging in criminal behaviour (Vitaro et al., 2005). Thus, there is a considerable downstream impact of poorly developed self-regulation skills early in childhood (Healey & Healey, 2019; McClelland et al., 2007b).

Substantial differences between children's self-regulatory skills are evident when they begin school (Morrison, Ponitz, & McClelland, 2010). Rimm-Kaufman et al. (2000) explored teachers' perceptions of problem behaviour at school entry and reported that close to half of teachers identified that over 50% of children exhibit difficulties with self-regulation skills required for success in a classroom setting. McClelland and colleagues (2000) found that 17% of children aged four to five years were reported by teachers as being unable to follow directions, work independently, or sit still. Given the individual differences in children's early self-regulation skills and the importance for overall adjustment and success later in life, it is imperative to better understand the processes involved in its development, and how they can be promoted in children's environments.

Exploration of the mechanisms in which self-regulation skills develop demonstrates once more that the early years are a sensitive period of development (McClelland et al., 2014; McClelland et al., 2007a; McClelland & Morrison, 2003). Research has revealed that individual characteristics including neurological development (and particularly maturation of the prefrontal cortex which plays host to executive functioning) and the child's emotional

temperament (in that the effortful control of emotions is linked with the outward expression of behaviour) are important early contributors to developing children's self-regulatory competencies (Blair, 2002; Calkins, Howse, & Philipott, 2004; Kochanska, Murray & Harlan, 2001; McClelland et al., 2007b).

Research has also identified several external factors associated with the development of self-regulation. These include the parenting environment (and in particular the quality of attachments with parents), and the quality of the home learning environment (McClelland et al., 2007b; Morris et al., 2007; NICHD ECCRN 2003). The available evidence suggests that the quality of adult-child relationships is an important factor that influences a child's ability to follow instructions and regulate their behaviour (Pillay, 2014). Sensitive and responsible caregivers are more likely to demonstrate and model appropriate ways of modulating behaviour (Ramsden & Hubbard 2015). Children are then supported to practice these skills under caregivers' supervision, and will eventually internalize them so they can self-regulate independently (Farrant & Reese, 2000). Furthermore, caregivers can provide explicit discussion and explanation around the components of self-regulation that are unable to be directly observed, including; choice-making, consequences for actions, selflessness, and the reasoning behind right and wrong (Kochanska et al., 2001). Most importantly, effective caregivers understand the importance of scaffolding children's learning of self-regulation principles to an age-appropriate level (Pillay, 2014).

Self-regulation skills are important as children make the transition to school, and children who do not possess the necessary skills may experience difficulty in a multitude of domains (Kochanska, Philibert, & Barry, 2009). They may instead display predominantly immature strategies for navigating challenging experiences including aggression, whining, sulking, tantrums, or deceitfulness (Blair & Diamond, 2008). Children who are more impulsive or reactive inevitably have stronger behavioural and emotional urges to modulate

(Blair & Diamond (2008). Thus, it is often these children that exhibit 'problem behaviours' in greater frequency, intensity and duration (Cameron-Ponitz et al., 2009). Furthermore, these children may also be disadvantaged in their capacity to develop the regulatory skills needed to effectively control behaviour and emotions, especially when they are frustrated or distressed (Kochanska, Coy & Murray, 2001). Overall, children who have poor self-regulation are more likely to struggle throughout their schooling career and beyond (McClelland et al., 2007a; Turney & McLanahan, 2015).

1.4 The Importance of Shared Language

Conversations with others are a basic building unit of child development. They provide proximal opportunities to reflect on and express internal thoughts and feelings, and to observe others expressions and perspectives (Applebee, 2008; Fivush, Haden & Reese, 2006). When children are encouraged to articulate their inner state, they are required to make links between events and emotions, thoughts and feelings, and behaviours and consequences (Bronfenbrenner & Morris, 2006). These conversations are hypothesized to operate within a zone of proximal development (Vgotsky, 1978), in which young children can learn more about their own internal experiences, as they relate to others' perspectives and general social rules. The types of conversation most beneficial for child development are those that are highly reciprocal and involve several exchanges between the child and adult and are in a style that corrects mistakes, establishes a common understanding of an event or a problem, and suggests a coordinated plan of action (Bird & Reese, 2006; Fivush, 2007; Vallotton & Ayoub, 2011). Therefore, the extent to which caregivers engage in warm, supportive, and cognitively stimulating interactions has ongoing consequences for children's social-emotional and self-regulatory trajectories (Bronfenbrenner & Morris, 2006).

There is evidence to suggest that conversations centred on children's mistakes, outbursts, obstacles, failures, and transgressions are important for learning (Mashburn &

Pianta, 2006; Mashburn et al., 2008). Parents and teachers who adopt a warm, patient and perspective-taking interactional style can turn a child's experiences into opportunities for personal growth (McCleod & Kaiser, 2004). When adults discuss these events with children it fosters mental representations consisting of an enriched vocabulary, that can be applied to future situations, emotions, and problems (Laible, 2011; Newcombe & Reese, 2004). Sensitive caregiving and the associated conversations may also foster secure attachment, and increases the likelihood that a child will approach them when they need help with in the future (Laible, 2004b; Ontai & Thompson, 2008).

Home-based ECEC settings offer an ideal environment for high-quality conversations that may foster children's learning and development across a range of domains (Ahnert et al., 2006; Jones, Greenberg, & Crowley, 2015). An educator can easily locate topics to talk about that allow the child a chance to reflect on their inner state - for example activities like playing with toys, reading, painting, or other new experiences (Jerome & Pianta, 2008; LoCasale-Crouch et al., 2008). Additionally, learning can also be achieved through external situations that the child has no direct involvement in, in that a child can be asked what a character in a book or a movie might be thinking or feeling (Vacca & Vacca 2005). An educator's active listening skills, and ability to articulate their own and the child's perspectives is cornerstone to promoting social-emotional and self-regulatory development (Howes et al., 2008; Jennings & Greenberg, 2009).

In summary, conversations are thought to serve as a mode of transport for adults to share abstract concepts such as emotions, theory of mind, time, narrative structure, and inference (Fivush et al., 2006; Harris et al., 1989; Nelson & Fivush, 2004). Some researchers posit bi-directional relationships between developing language, self-regulatory, and social-emotional competencies (Cole, Armstrong & Pemberton, 2011; Durlak et al., 2011; Skibbe et al., 2019). Increased exposure to language in early childhood has been shown to positively

relate to academic achievement, social skills, emotional development, and emotional regulation (2010; Curby, 2016; Otto, 2006; Vallotton & Ayoub, 2011). However, research has also identified that the quality of language the child is exposed to is just as important as the quantity (Nelson & Fivush, 2004; Ornstein, Haden & Hedrick, 2004; Taumoepeau & Reese 2013).

1.5 Reminiscing

One style of conversation shown to be particularly valuable for child development is 'reminiscing' (Reece & Fivush, 1993). Reminiscing refers to conversations about past events shared by an adult and child (e.g. a recent trip to the airport) in which the adult directs the joint recall of the experience (Fivush & Fromhoff, 1988; Reese and Fivush 1993; Zaman and Fivush 2013). Importantly, reminiscing aims to assist children's cognitive-linguistic development, helping children to actively co-construct past events, rather than simply echoing the adult's statements. Adults may reminisce with children about a variety of events, and through repeated experiences, children learn what aspects of events are important to remember, and learn from. In optimal situations, the adult scaffolds the joint recall by providing narrative structure, memory prompts and allowing opportunities for the child to elaborate the details of the event (Reese & Fivush, 1993). This allows the child to remember not only about the who, what, and where of the memory, but also to develop an understanding into the emotion, evaluations, perspective, and subjective feeling laden in the event (Bird & Reese, 2006; Fivush, Habermans, Waters, & Zaman, 2011). Eventually, children are able to integrate their own perspective within the shared experiences of others that were involved (Bruner, 1987; Fivush & Haden, 1997).

There are several reasons why reminiscing about events after they have already occurred may impart unique benefits for development and growth. In-the-moment stress, confusion, or strong emotions during an event may prevent productive discussion of the

internal mechanisms at play (Laible & Thompson, 2007; Laible, 2011; Laible & Panfile, 2009). Talking about emotionally-charged past experiences provides distance between the child (as well as the parent) and these barriers (McGuigan & Salmon, 2004). Hindsight also provides opportunities to promote reflection and understanding of their own and others emotional states, causes and consequences of emotions, and reflection around appropriate emotional and behavioural strategies for the future (Laible, 2011; Ramsden & Hubbard, 2015).

The potential advantages imparted by caregivers reminiscing with children span numerous early developmental domains including: language production and fluency (Peterson, Jesso, & Mccabe, 1999); understanding of mental states (Reese & Cleveland, 2006; Sales, Fivush, & Peterson, 2003; Taumoepeau & Reese, 2013); and social-emotional and self-regulation competencies (Laible, 2004a; Leyva & Nolivos, 2015; Van Bergen & Salmon, 2010b). With such a broad and complex list of developmental advantages, it is perhaps not surprising that researchers have difficulty understanding the nuances of the relationship(s) between reminiscing and these domains (Das, 2019; Fivush, Haden, & Reese, 2006; Laible & Song, 2006). Additionally, there is a dearth of evidence exploring how reminiscing in other adult-child contexts (e.g., at ECEC) might support children's development; and whether any similarities or differences in the developmental benefits exist in comparison to parent-child reminiscing (Clifford et al., 2019). However, the available evidence suggests that the positive influences of reminiscing have been shown to occur from early on in development; as Farrant & Reese (2000) found that from 19 months of age reminiscing between mother and child serves to increase memory and storytelling skills.

Concurrent and longitudinal studies of children in preschool have suggested associations between maternal reminiscing, and self-regulatory competency, emotion understanding, and social skills (Lagattuta & Wellman, 2002; Laible, 2004a; Leyva, Berrocal,

& Nolivos, 2014; Leyva & Nolivos, 2015). Furthermore, there is evidence to suggest that reminiscing conversations that are scaffolded to the child's development stage provide the most gains. To date there is limited research exploring the relations between reminiscing and children's developmental outcomes outside of parent-child contexts (Neale & Pino-Pasternak, 2017). Furthermore, it is noted that a majority of parent reminiscing research has specifically explored mother-child interactions. Thus, there is a considerable gap in our understanding of how reminiscing in ECEC contexts might influence children's learning and development (Andrews, Van Bergen, & Wyver, 2019). As a result a majority of the literature outlined in subsequent sections delineates reminiscing in parent-child contexts and children's developmental outcomes.

1.6 Elaborative-Style Reminiscing

How caregivers and children reminisce together influences how children come to understand, remember, and report their experiences. Key theorists suggest that a 'reminiscing continuum' exists, in which conversations range from low to high elaborative style (Fivush et al., 2006; Reese & Fivush, 1993; Reese, Haden, & Fivush, 1993). Low elaborative or repetitive-style conversations are characterised by close-ended questions (that typically require a short, to the point answer), and typically perseverate on the topic of conversation without providing additional information about the event (Farrant & Reese, 2000). Contrastingly, highly elaborative conversations involve numerous open-ended questions (which encourages in-depth and reflective answers), and detailed descriptions that foster more complex, and multifaceted discussions about past events (Fivush, Haden & Reese, 2006). Research has shown that maternal caregiver's conversational style about past events is relatively stable over time, across different siblings, and regardless of the context (Haden, 1998; Reese & Brown, 2000; Reese, Haden & Fivush, 1993).

There is a wealth of evidence to suggest the potential benefits of elaborative reminiscing. Studies have found that parental variance in the amount they provide opportunities for children to elaborate, relates to children's overall vocabulary (Peterson et al. 1999), independent narrative skills (Reese, Leyva, Sparks, & Grolnick, 2010), autobiographical memory (Fivush, 2011; McGuigan & Salmon, 2004; Wu & Jobson, 2019), and a range of social-emotional skills (Goodvin & Romdall 2013; Haden & Ornstein 2009; Reese & Cleveland 2006). Research has also shown associations between elaborative reminiscing and language comprehension (Peterson et al., 1999; Reese, et al., 2010), understanding of mental states (Reese & Cleveland, 2006; Welch-Ross, 1997), understanding of self (Fivush, 2007; Reese et al., 1993), regulatory processes (Leyva & Nolivos, 2015) and social-emotional understanding (Laible & Thompson, 2000; Laible & Song, 2006).

Evidence also suggests that reminiscing is positively related to children's social-emotional competence. Laible (2004a) found that children who scored higher on emotional understanding tasks were those with highly elaborative caregivers. Moreover, highly elaborative caregivers also had children who scored higher on behavioural control (the ability to resist immediate gratification) and displayed more positive representations of relationships. Laible (2004b) sought to test the assertion that reminiscing in particular is associated with benefits for child development. They compared the associations between caregiver-child shared talk and children's emotion understanding in two contexts; reminiscing and reading a wordless storybook. Caregiver's elaborative reminiscing, and not language content during shared book reading, predicted emotion understanding. Moreover, Ontai and Thompson (2008) explored the relationship between parent-child talk and children's developing theory of mind (i.e., their understanding of others mental states and perspectives) in a sample of 78 children aged between four and five years old. They found that parental elaborations significantly predicted children's level of understanding of mental states. Furthermore, the

total amount of discussion about negative events negatively predicted children's aggressive behaviour, supporting the idea that reminiscing assists children's actual conflict resolution behaviour (Ontai & Thompson, 2008).

Research investigating the connection between elaborative reminiscing and self-regulatory skills is scarce. Some evidence suggests that caregiver-child elaborative reminiscing promotes general self-regulation skills across settings; although it is possible that improved self-regulation following reminiscing is the bi-product of gains in other developmental domains (e.g., social-emotional, language, or memory) as suggested by Laible (2004a). Moreover, Leyva and Nolivos (2015) found an association between Chilean parents' use of open-ended questions during reminiscing and teacher ratings of four-year-old children's self-regulation (attention and impulse control). Thus, the available evidence is suggestive of positive relations between parent-child reminiscing and children's self-regulatory development; although more research is needed to understand the nature of this relationship.

Past research has shown that components of elaborative-style reminiscing can be identified and taught to parents. Boland, Haden, and Ornstein (2003) trained mothers of pre-schoolers to use a more elaborative style which consisted of; asking children 'wh' questions, linking the event to children's prior knowledge, encouraging talk about conversational topics that children appeared interested in, and praising children's verbal and nonverbal behaviour. This training was provided via a pamphlet, and mother's also viewed a video demonstrating components of the elaborative style. The findings illustrated that mothers who received training used more elaborative utterances during shared talk with their children compared to untrained mothers. Encouragingly, the children of trained mothers recalled more of the target event after both one day and three week delays. Peterson, Jesso, and McCabe (1999) provided education and training to financially disadvantaged mothers, which encompassed

spending more time engaging in narrative conversation with their pre-schoolers, asking more open-ended questions, and making causal connections between their experiences. These children were observed to more easily recall autobiographical details related to their experiences at a later date. Other evidence suggests that the process of learning techniques that promote elaborative-style reminiscing can take time. Van Bergen, Salmon, and Dadds, (2009), found delayed effects for parent's use of elaborations at the six month post-test phase following training, which suggests that their use of specific language may continue to change, after participation in specific training designed to promote elaborative-style reminiscing. Children in this study also demonstrated better performances on the Emotion Cause Knowledge Task six months following participation in the training phase. It was concluded that delayed effects may also have existed for children's social-emotional competencies (Van Bergen et al., 2009). As well as providing evidence to complement the wealth of research demonstrating the benefits of elaborative reminiscing conversations on children's developing competencies, these findings provide vital evidence illustrating that certain conversational skills can be identified, and taught.

1.7 Internal-State Talk during Reminiscing

Some researchers posit that the amount of internal state talk during reminiscing is critical for eliciting gains in children's developmental competencies (Fivush, 2007; Laible, 2004b; Laible & Panfile, 2009; Welch-Ross, Fasig, & Farrar, 1999). Research has shown that caregiver's use of mental state terms (e.g., think, know, remember) positively predicted their children's use of mental state language at a later date (Fivush & Haden, 2003; Ontai & Thompson, 2002; Rudek & Haden, 2005). Additionally, children's use of emotion-based language has been shown to increase over time, in relation to their parents' use of emotion states during reminiscing conversations (Kuebli, Butler & Fivush, 1995). Furthermore, in a sample of 42 preschool children and their mothers, Laible and Thompson (2000) found an

association between mothers' explicit references to emotions during reminiscing and children's early development of self-awareness This may suggest that caregivers are providing children with a language-based framework for integrating and understanding their internal state (Laible & Thompson, 2000). Some evidence supports the notion that these associations are bidirectional, in that elaborative reminiscing facilitates children's emotion knowledge, which increases children's ability to engage and contribute during conversations about emotions and mental states (Wareham & Salmon, 2006).

When caregivers explain the causes and consequences of emotions (as opposed to sheer frequency of references to emotions), their children may gain a more sophisticated and enriched understanding of emotion states (Brown & Dunn, 1996; Denham, Zoller, & Couchod, 1994; Dunn, Brown, & Beardsall, 1991; Peterson & Slaughter, 2003). Explanations link emotion words to causal information, which provides an explicit framework for which children can understand the relationship between events and feelings (Cervantes & Callanan, 1998). The association between causal conversations and emotion understanding is relatively stable across the preschool years and gender and has been shown to extend to six years old (Brown & Dunn, 1996). In a sample of 25 Australian-European preschool-aged children Van Bergen and Salmon (2010b) found that the frequency of mothers' and fathers' explanations of emotions were positively associated with children's emotion knowledge on the Emotion Knowledge task (Denham, 1986). Furthermore, Dunn and colleagues (1991) also found that families who incorporated more causal language during conversations with preschool-aged children increased children's recognition of emotions and talk about perspectives at six years of age, even when controlling for children's initial talkativeness (both frequency and length of utterances) in the home environment.

Parents and children have been shown to differ in the ways they discuss the relationship between events and emotions, depending on the type of emotion elicited (Adams,

Kuebli, Boyle, & Fivush, 1995; Burch, Austin, & Bauer, 2004; Fivush et al., 2003; Fivush & Wang, 2005). Firstly, research has shown that the number of general emotion-based terms used by parents is greater when discussing negative events (Fivush et al., 2003; Fivush & Wang, 2005). Secondly, a study on parent-child dyads from Dunedin, New Zealand showed that participation in reminiscing conversations and shared book reading over about two months predicted the relative change in children's' references to emotion content during conversations about past negative events across this period (Schaughency et al., 2018). Taken together, this might suggest that parent's use of emotion-based terms during talk about negative events is being modelled to their children, who over time begin to incorporate more emotion-based language into their own vocabulary.

Reminiscing about past negative events also appears to improve children's ability to navigate negative events in the future. Evidence suggests that talk about emotions and their causes is more frequent and resolution-focused for negative emotions than positive emotions (Fivush, 1994; O'Kearney & Dadds, 2005; Sales et al., 2003). Observational research has found that caregivers who are more elaborative when discussing past negative events have children with greater emotional understanding and wellbeing (Laible, 2004a; Salmon & Reese, 2015). Moreover, Leyva and colleagues (2014) explored associations between Spanish-speaking parents' emotional reminiscing and their preschool-aged children's capacity to volunteer socially competent resolutions on the Challenging Situations Task. They reported caregivers' use of elaborations during conversations about negative events was associated with children's later social problem-solving. Lagatutta and Wellman (2002) explain that negative emotions are, by nature, aversive, which typically involve a complication or undesirable outcome. Therefore, such discussions may be used as a means to help children understand negative emotions and develop general internal coping skills.

There is also evidence to suggest associations exist between explanatory mental state talk and various developing self-regulatory competencies. Laible and Song (2006) investigated associations between caregivers and preschool children's combined frequency of mental-state talk and children's emotional and relational understanding. They reported that caregivers were less likely to rate their child as aggressive when they were more frequently discussing negative emotions during the reminiscing. Sales and Fivush (2005) investigated the relationships between parents' explanatory language during reminiscing and children's behavioural competencies in a sample of 27 children aged between five and 12 years old. They found that the frequency of parents' emotion explanations was highly related to children's contributions to the conversation. Additionally, parents' use of emotional language when discussing stress-provoking events (a severe asthmatic attack) negatively predicted their children's externalising behaviour problems, such as verbal and physical aggression, non-compliance and restlessness. Importantly, these authors conclude that parents' discussions about, and explanations for, negative events may be more important for their child's well-being than the child's conversational descriptions and understanding of the event (Sales & Fivush, 2005).

1.8 Reminiscing in ECEC Settings

Carr (2011) sought to explore the potential benefits of promoting the use of reminiscing practices in ECEC contexts. In a one year study across numerous early childhood settings, researchers investigated how educator-child dyads discussed learning experiences. Results showed that teachers frequently prompted children to recall their learning experiences with open-style questions such as "remember last time" or "how did you learn to do that?" (p. 260). The authors concluded that the most engaging and beneficial conversations were characterized by: the educator conveying genuine interest in the topic of conversation; reciprocal turn-taking with both the educator and child having an active role; and educators

making connections between learning experiences and with personal aspects of the child's life (e.g., hobbies and interests, skills, family etc.). These findings provide a useful platform for the design and implementation of future studies into the impact of reminiscing in early childhood education settings.

A recent study conducted by Andrews and colleagues (2019) in Australia sought to explore how educators interacted with children during reminiscing conversations. Two samples of educator-child dyads were analysed; a younger sample of children aged 27-36 months (n=40), and an older sample of children aged 48-60 months (n=45). A subsample of these children (n=42) also participated with their mothers. Findings showed significant associations between educators' and children's total amount of elaborations. Additionally, comparisons between educators and mothers reminiscing style showed that while mothers were more elaborative on average, this relationship did not apply to those educators who held a degree. Firstly, these findings highlight that educator-child reminiscing may impart benefits for children's language, and the ability to identify and discuss the nuanced elements of past and future events. Secondly, these findings highlight that there may be instances in which educator-child reminiscing can be just as beneficial as mother-child reminiscing. Another interesting finding was that educators used more elaborative terms with older children, suggesting educators can tailor their conversational style to meet children's developmental needs. Altogether, this evidence supports the idea that educators can serve as capable and important reminiscing partners; furthermore, that reminiscing with educators as well as mothers provides extra opportunities for learning and development (Andrews et al., 2019).

Lastly, other research in the wider umbrella project that encompasses the current thesis, has begun to explore possible associations between shared language in NZ home-based ECEC settings, and a range of educator and child outcomes (Timperly et al., 2019). Results showed that participation in training modules designed to facilitate educator-child

shared talk via reminiscing and shared book reading may facilitate greater exposure to both quantity and quality of language that children are exposed to. Additionally, participation in this training module was also associated with educators using a greater number of questions, greater use of descriptive talk about concepts, and language that linked storybook content to general knowledge or personal experiences. There was also evidence that children who participated alongside their educators used more overall talk, more diversity in language use, and more language relating to their personal experiences. Hence there is preliminary evidence to suggest that reminiscing activities in NZ home-based ECEC setting may facilitate enriching educator-child interactions, which then promote children's learning and development (Timperly et al., 2019).

Despite the large number of opportunities to reminisce, there is surprisingly limited research on the important educator attributes for talking with children in their ECEC. Neale and Pino-Pasterak (2017) outline three key points that are essential for future studies to explore. First, there is a significant gap in our general understanding of the role of reminiscing in ECEC settings, which limits our understanding of how to support early childhood practices to impact child development. Second, analysing micro-level units of conversations (e.g., the quality) may enrich our understanding of implicit learning and how to maximise it in the educator-child context. Third, methods of conversation analysis that are used in parent–child reminiscing research could potentially be applied to other adult–child conversations (Neale & Pino-Pasterak, 2017). Other early investigations in NZ home-based ECEC settings has also suggested that traditional schemes for evaluating the quality of reminiscing in parent-child dyads may need to be adapted to capture quality interactions between educators and children (Clifford et al., 2019).

1.9 The Rationale for Exploring Reminiscing in Home-Based ECEC Contexts

The growing number of both children in ECEC, and the average time that children spend in ECEC, necessitates that education settings include explicit components in their curriculum that foster children's social-emotional and self-regulatory competencies (Yelverton & Mashburn, 2018). Teaching adults to provide children with opportunities to reminisce is a relatively simple, yet effective tool for doing so (Reese, 1995). Importantly, evidence to date also suggests that certain elements of reminiscing can be identified by researchers, and taught to the adults involved in children's care (Boland et al., 2003; Peterson et al., 1999; Schaughency et al., 2018; Van Bergen et al., 2009). Although dedicating resources to promote children's social-emotional and self-regulatory development can be a demanding task, the benefits may be worth the effort, not only because they provide essential supports that can have long-term implications (Blair & Razza, 2007; Moffitt et al., 2011), but also because it may be easier at this age than it will ever be again (Blair & Diamond, 2008).

To date, research exploring the relationship between reminiscing style and/or content and social-emotional outcomes for preschool-aged children has produced promising, yet inconsistent findings (Van Bergen & Salmon, 2010a; Wang, Doan, & Song, 2010; Wareham & Salmon, 2006). In particular, differential associations between reminiscing and broader dimensions of social-emotional, self-regulation, and language development appear to exist (Das, 2019). Because research investigating reminiscing has almost exclusively sought to explore parent-child dyads, it is worthwhile exploring whether the benefits of reminiscing extend to other contexts, including home-based ECEC (Andrews, 2019; Carr, 2011). Findings suggest that reminiscing may serve as a vehicle for promoting understanding of internal states (Wareham & Salmon, 2006). Given this, reminiscing may serve as a useful tool for home-based ECEC to develop children's language, social-emotional, and self-regulatory skills

(Carr, 2011; Neale & Pino-Pasternak, 2017). In sum, further examination of the role of reminiscing and developing preschool-aged children's self-regulation and social-emotional competencies is warranted, particularly in home-based ECEC settings (Clifford et al., 2019).

1.10 Current Investigation Overview

This thesis was conducted in the context of a wider project exploring professional learning and development (PLD) to support early childhood learning and development in home-based ECEC (Supporting Teaching and Learning in Home-based Early Childhood Education, Tlri.org.nz, 2016). The wider project was conducted as a partnership between university researchers in the fields of clinical and developmental psychology and education and visiting teachers (VTs). Practice-based research suggests that building on existing structures enhances the implementation of the intervention (Bromer & Korfmacher, 2017; Tonyan et al., 2017), thus VT's pre-existing relationships with home-based educators served as the basic organisational unit for the entirety of the implementation phases. Additionally, the wider project adopted evidence-based principles of PLD being more effective when it is sustained over time and when implemented in the context of 'learning communities', and when supported by supervisors (e.g., VTs) (Bromer & Korfmacher, 2017; Farley-Ripple et al., 2018). Building on earlier research (e.g., Schaughency et al., 2016), researchers worked alongside VT's and home-based educators to identify and implement PLD modules appropriate for home-based settings. The three PLD modules implemented in this project were Rich Reading and Reminiscing (RRR; Schaughency et al., 2014); Enhancing Neurobehavioral Gains with the Aid of Games and Exercise (ENGAGE; Healey & Healey, 2019); and Shared Reading (SSS; Schaughency et al., 2014). These three modules shared the conceptual framework of intentionally fostering development within specific areas of development through responsive scaffolding in developmentally-appropriate interactions.

1.11 Overview of PLD Modules

The RRR, SSS, and ENGAGE modules implemented in the current study were adapted to incorporate promising approaches for promoting developmentally important targets in parent-child dyads to the family-like setting of home-based ECEC. Each module incorporated a range of activities intended to allow educators repeated experience and practice utilizing the skills promoted by that module. Notably, university researchers involved in coordinating the wider project had some previous experience in delivering and evaluating the RRR and SSS modules, and children's broad developmental gains (e.g., Das, 2019; Schaughency et al., 2014; Timperly et al., 2019). To enhance the fidelity of PLD delivery, university researchers developed a standard set of resources to be used in PLD sessions and materials to support implementation over time. Educators' supervising VTs attended PLD sessions alongside educators so they were also exposed to the same module content as the educators.

Both the SSS and RRR modules share a focus on promoting children's developing competencies in the context of proximal interactions with caregivers. Additionally, both modules included an educator-child shared book reading component as a principle component of providing educators and children practice with developing and using the key skills targeted by the module. In addition, they both also encouraged oral language interactions outside of shared reading. Across the six-week implementation for each module, educators in the SSS and RRR modules were provided with two books per week to read with children. The 12 book sets were deemed age-appropriate for preschool-aged children based on the theme, illustrations and length, and were a mixture of familiar and non-familiar books to educators and children. Books generally followed a protagonist who encounters an emotion-eliciting issue and, through problem-solving, the issue is resolved. Books contained a range of prompts throughout the book to encourage interactions during shared reading and

at the end of the book to suggest interactions outside of shared reading, with the content of these prompts differing between the SSS and RRR modules (this is discussed in more detail in the relevant sections below).

1.11.1 Rich Reading and Reminiscing (RRR; Schaughency et al., 2014).

At the professional development session, educators in the RRR condition were introduced to shared reading and other adult-child oral language interactions as opportunities for fostering learning, and other strategies to maximise the usefulness of conversations with children. They were first reminded of the importance of children's oral language in fostering children's learning and development. Next, educators were introduced to interactive shared reading and elaborative reminiscing - interactive conversations about past experiences that may also foster socio-emotional competencies. The books provided to educators contained a range of prompts specifically designed to promote strategies important to reminiscing (e.g., identifying characters mental states - "[character] doesn't want to leave"; or discussing characters emotions - "[character] is sad because he lost his toy"). Additionally, at the end of the book there were three reminiscing-specific tasks to complete with the child. For example, educators might be asked to talk to children about a past event in which they felt proud about the child, or a time that the child wanted something that belonged to someone else. As such, prompts and activities were designed to encourage conversations that included the emotional and mental-state aspects of experiences.

Interactive strategies taught included research-informed (e.g., Carr, 2011; Fivush, Haden & Reese, 2006; Leyva & Nolivos, 2015; Peterson et al., 1995) techniques to encourage children's participation as active conversational partners, which included the use of open-ended questions/ wh- questions; echo and add; implementation of two second pauses and providing a response if children do not respond; and following the child's lead. Educators

were provided with handouts outlining key points, and an MP3 recording of the training session was available on request.

1.11.2 Strengthening Sound Sensitivity (SSS; Schaughency et al., 2014).

The SSS module also involved shared book reading between educators and children; however, with important distinctions in the developmental domains it sought to target. Specifically, the SSS module seeks to promote early exposure to literacy and oral language, in what is termed 'preventative orientation' – that is, explicit early experiences that prevent early learning delays that might progress into more severe reading and writing disability (Torgesen, 1998). Providing opportunities for children to develop an awareness of the sound structure of words, is an early but necessary building block for later literacy development (Anthony & Francis, 2005; Shanahan & Lonigan 2010). It is noted that children in the current thesis were not identified as being at risk for literacy impairment, and nor was the SSS module selected to remediate any language difficulties that children might have experienced. Rather, it served as an evidence-based approach for promoting development in early childhood that could serve as an active comparison to the RRR and ENGAGE modules (Schaughency et al., 2018).

Delivery of the SSS module was parallel to the RRR module, with the main difference being the content of prompts for interactive shared reading and oral language interactions outside of shared reading. It is noted that while the books were the same as those in the RRR condition, they did not contain prompts for reminiscing-specific activities. Instead, three sets of coloured prompts were inserted throughout each book to encourage extra-textual interactions to scaffold phonological concepts (e.g., emphasizing the sounds of rhyming words, or emphasizing the first sounds of words). Books also contained activities at the end designed to promote wordplay about phonological concepts introduced during shared reading (Shanahan & Lonigan, 2010). For example, [when tidying up together with children]

educators might be asked to think of rhyming words with children such as; **Socks**, R**ocks**; B**ooks**, H**ooks**; Pl**ate**, G**ate**. As such, prompts and activities were designed to promote children's phonological awareness and early language development.

1.11.3 Enhancing Neurobehavioural Gains with the Aid of Games and Exercise (ENGAGE; Healey & Healey, 2019).

ENGAGE was originally designed as a preventive intervention that aims to promote pre-school children's development of self-regulation via techniques targeting behavioural, emotional, and neurocognitive functions (Healey & Halperin, 2015). ENGAGE seeks to provide the child with internal self-regulatory skills in the context of 'games' that take place during active and interpersonal interactions with key others (traditionally parents)(Healey & Healey, 2019). The games are associated with behavioural regulation (e.g., musical statues), cognitive regulation (e.g., puzzles), emotional regulation (e.g., relaxation and deep breathing), and exercise (e.g., ball games and skipping) (Healey & Halperin, 2015).

ENGAGE was first developed and implemented in the context of developing a theoretically-informed, parent-mediated intervention for difficult-to-manage preschoolers who presented with emerging signs (i.e., poor self-regulation skills) of possible Attention-Deficit-Hyperactivity Disorder (ADHD; Healey & Halperin, 2015). In the current study, the ENGAGE module was selected on the basis of its potential merits for facilitating the development of behavioural regulation and independent coping skills for young children in general, rather than to remediate children's self-regulation difficulties.

1.12 Project Timeline

As part of the larger project, educators had the potential opportunity to sequentially participate in each of the above modules. The initial baseline phase of data collection occurred before home-based educators' and children's engagement in their first PLD module. Each module then began with a professional development session in which educators were

introduced to the focus of the module and the rationale for the developmental domains it sought to target. They were then introduced to the materials they would receive and strategies to foster children's learning. Educators were encouraged to adapt activities and strategies to scaffold children's development. Following the professional development session, each module continued with a six week implementation phase, during which educators were provided with additional weekly resources to support implementation. Weekly materials included an implementation chart, to be completed weekly by educators and children, which were then reviewed with university research partners. After three weeks of implementation, the university research partner met with educators to assess their experiences associated with implementation to date, and to address any concerns that they had. Post-test data collection occurred after completion of each PLD module (and for those continuing to participate, before beginning a new module). After the post-test data collection, educators were invited to a reflection session, where they were encouraged to provide their feedback and subjective evaluation regarding their experiences implementing the PLD module with the children in their care.

In total, there were six phases of PLD implementation across the span of approximately two years (August 2016 – September 2018) in which educators could potentially participate in each of PLD modules along with children in their ECEC setting who were in the target age range. If children participated in more than one PLD module with their educators after a delay (e.g., the following year, after summer holidays), they were provided with a shortened pre-test evaluation to capture possible developmental changes while reducing task demands for educators and children. This shortened pre-test included some, but not all measures of children's social-emotional and self-regulatory development. In the current thesis, two of the three selected outcome measures were administered at pre-test two. As there were three PLD modules in total, educators could participate up to three times. To

more clearly evaluate the possible benefits of participation, only children who began participating at the time of their educators' initial participation are included in this thesis.

The follow-up phase of the current study occurred approximately one year after children had started primary school, which in the New Zealand schooling system is at about six years of age. Research exploring the long-term impact on children's developmental competencies of targeted pre-school programmes has provided mixed findings. There is evidence to suggest that incentives targeting children's language proficiency and academic performance have lasting effects (Broberg, Wessels, Lamb, & Hwang, 1997; Phillips, Gormley, & Anderson, 2016). In contrast, some studies have shown that developmental gains evident soon after programme completion are susceptible to a "fading" effect with passing time (Atchison, Diffey, & Workman, 2016; Claessens & Garrett, 2014). Therefore, an important focus of the current thesis was to investigate whether any long term benefits for children's outcomes existed as a result of participation in PLD modules.

1.13 Research Framework

The current study was guided by the principles of single-case research. This type of research is intended to identify the causal and/or functional relationships between independent and dependent variables. This is achieved by comparing an individual's performance on a given measure before the implementation phase to performance during and/or after the implementation phase (Horner et al., 2005). Single-case research is advantageous in that the individual person is the unit of analysis, and that it allows for both within and between-subjects comparisons to control for threats to internal validity (Towne & Shavelson, 2002). Systematic replication of findings serves to enhance external validity (Martella, Nelson, & Marchand-Martella, 1999). Horner & Odom (2014) stipulate that in order to document experimental control, *at least* three demonstrations of a subject displaying tangible improvement on the specified dependent variable(s) are needed, and documentation

of improvement at more than one time point is desirable. For a full description of the requirements, advantages and disadvantages, and appropriateness of single-case research designs, see Horner & Odom (2014).

Single-case research is extremely useful to test hypotheses and generate novel ideas. These study methods are also valuable to falsify an existing hypothesis, report a novel treatment, and present a therapeutic method in detail to be fully replicable (Kratochwill & Levin, 2010). Additionally, single-case studies can clarify whether interactions involving multiple variables or outcomes are meaningful (Winn, Skinner, Allin, Hawkins, 2004), or whether high-investment treatments are feasible for widespread use (Kratochwill et al., 2013). Furthermore, single-case may be the only way of collecting data in settings where rigorous control is not possible or appropriate (e.g., in the home) (Barrett et al., 2006). Numerous studies have supported the use of single-case research in the fields of education and clinical psychology (Kratochwill & Stoiber, 2002). In light of the wider project having a staggered approach to the implementation of the three PLD modules, the use of a framework guided by the logic of single-case research seemed conceptually appropriate (Kratochwill & Levin, 2010; Skinner, 2013). This allowed for measurement and comparisons of educators' and children's reminiscing conversations, as well as children's developing self-regulatory and social-emotional and self-regulatory competencies, over time and as a function of participation in specific PLD modules. It is noted that assignment to the experimental condition (i.e., order of delivery of PLD modules) was randomly assigned across each network of a VT and the educators they supported, following recommendations for practice-based research (Kratochwill et al., 2013). However, because some data collection procedures differed across participants and multiple data points were not collected within each phase, the present study cannot be considered to meet the criteria for a single-case experimental research design. Instead, it is better conceptualized as a case series with multiple data

collection probes over time.

1.14 Hypotheses

Based on the literature described above, it is hypothesized that educators will showcase an increase in their internal state talk (i.e., explicit use of emotion and/or cognitive terms) during reminiscing conversations following participation in the RRR module. For educators who participate in the RRR module first, this increase is expected to occur at post-test one, relative to pre-test. For educators who participate in the RRR module second (following initial completion of the ENGAGE module), this increase is expected to occur at post-test two, relative to post-test one. Evidence suggests that children's language is related to their parent's (Fivush & Haden, 2003; Ontai & Thompson, 2002; Rudek & Haden, 2005), and to their ECEC educators (Andrews et al., 2019). Thus, it is predicted that children will show a parallel trend to their educators in their use of internal state talk (emotion and cognitive terms) during reminiscing, following participation in the RRR module. Next, it is hypothesized that that children's independently assessed social-emotional competencies will differentially improve as a function of participating in the RRR module alongside their educator. Additionally, it is also expected that children's self-regulatory competencies will differentially improve as a function of participating in the RRR module alongside their educator. Evidence of relative change on measures of social-emotional and self-regulatory competency is expected to occur at the relevant post-test time point following participation in the RRR module (i.e., at post-test one for children who participate in the RRR module first, and at post-test two for children who participate in the RRR module second), and positive change is expected to be maintained through to the one year follow up period.

Method

The study was reviewed and approved by the ethics committee at the University of Otago prior to the commencement of the study (reference number 16/016). A copy of the ethics approval form is available in Appendix A.

2.1 Participants

To recruit participants, VT's first approached the home-based educators in their network who provided ECEC to children in the target age-range of three to five years old, to provide information about the project and invite educators' participation. When these educators provided consent for participation, parents of children were then contacted to inform parents about the project and invite children's participation alongside their home-based educators. Both educator and parent consent were required for participation.

Participants in this thesis are home-based educators and children who began participation at the time of educators' initial participation; and children who were then eligible to complete the follow-up phase of data collection having attended primary school for at least one year. Parents were contacted to arrange their children's participation in two more assessment sessions as part of the one year follow-up study. By 1 October 2019 a total of 25 children had completed the data collection phase at the one year follow-up period; however, four children had to be excluded due to missing data at previous time points. Thus, the final sample for the current study included a total of 21 children, who participated alongside a total of 17 educators. One child had reminiscing data missing at post-test two, and two educators and three children had reminiscing data missing at post-test three; due to sickness or unknown reasons. As noted above, educators were given the freedom to choose whether they participated in further modules following the completion of their first module.

Thus, a portion of the educators completed more than one module alongside children, while others did not. All educators were female and had an average of 5.35 years' experience working in ECEC settings (SD = 1.32 years). Using the total response methodology for recording ethnicity data (Cormack & Robson, 2011), 94% of educators identified as NZ European, 6% as NZ Māori, and 6% as European. The age range of children in the current sample at the time of pre-test assessment was between 3.25 and 4.5 years old (M = 3.95, SD = .32). There were approximately even numbers of female and male participants (male = 12, female = 9). Within our sample 91% of children were identified by their parents as New Zealand European descent, 10% as Māori descent, 5% as New Zealand American descent, and 5% as Indian descent. Condition information for all participants is presented in Table 1.

2.2 Data Collection Overview

Across each evaluation phase (e.g., from initial baseline through to one year follow-up) trained research assistants and postgraduate psychology students individually administered measures to children. All experimenters involved in administering and scoring data, and transcribing and coding interaction material, were blinded to the modules in which participants had participated. During the pre-test and post-test phase assessments were split across three sessions - two child assessment sessions to increase children's engagement and to reduce fatigue, and an additional session for educator-child interactions. Child assessments and educator-child interactions were conducted by independent members of the research team. Each session typically lasted 40 minutes, although there was considerable variation between child participants based on their level of engagement and abilities across tasks. To promote ecological validity, sessions were conducted in the child's typical learning environments (i.e., the child's home-based setting or, at one year follow-up, primary school). At each phase, sessions were constructed in a fixed manner, with consideration for task demands and response burden. The tasks included in this study were administered at each

Table 1. *Module Completion Information for Educator and Child Participants*

Educator	Module One	Module Two	Module Three	Total Modules Completed
EDU-1	RRR	SSS	ENGAGE	3
EDU-2	RRR	SSS	ENGAGE	3
EDU-3	RRR	SSS	-	2
EDU-4	RRR	-	-	1
EDU-5	RRR	-	-	1
EDU-6	RRR	-	-	1
EDU-7	RRR	-	-	1
EDU-8	ENGAGE	RRR	SSS	3
EDU-9	ENGAGE	RRR	-	2
EDU-10	ENGAGE	RRR	-	2
EDU-11	ENGAGE	-	-	1
EDU-12	ENGAGE	-	-	1
EDU-13	ENGAGE	-	-	1
EDU-14	ENGAGE	-	-	1
EDU-15	SSS	-	-	1
EDU-16	SSS	-	-	1
EDU-17	SSS	-	-	1
Child	**Module One**	**Module Two**	**Module Three**	**Total Modules Completed**
CHI-1	RRR	SSS	ENGAGE	3
CHI-2	RRR	SSS	ENGAGE	3
CHI-3	RRR	SSS	ENGAGE	3
CHI-4	RRR	SSS	-	2
CHI-5	RRR	SSS	-	2
CHI-6	RRR	SSS	-	2
CHI-7	RRR	-	-	1
CHI-8	RRR	-	-	1
CHI-9	RRR	-	-	1
CHI-10	RRR	-	-	1
CHI-11	ENGAGE	RRR	SSS	3
CHI-12	ENGAGE	RRR	-	2
CHI-13	ENGAGE	RRR	-	2
CHI-14	ENGAGE	-	-	1
CHI-15	ENGAGE	-	-	1
CHI-16	ENGAGE	-	-	1
CHI-17	ENGAGE	-	-	1
CHI-18	ENGAGE	-	-	1
CHI-19	SSS	-	-	1
CHI-20	SSS	-	-	1
CHI-21	SSS	-	-	1

Note: RRR = Rich Reading & Reminiscing module, SSS = Strengthening Sound Sensitivity module; ENGAGE = Enhancing Neurobehavioural Gains with the Aid of Games and Exercise module.

time point (Head-Toes-Knees-Shoulders task, Emotion Cause Knowledge task, and Challenging Situations task). In each session children were provided with a certificate to take home and show to their parents, as well as a small prize pack at the conclusion of the second assessment session (e.g., stationary and small toys) as an acknowledgement of their participation in data collection activities. Educators were provided with $20 book vouchers at each data collection wave, and teachers with a $10 book voucher at one year follow-up, to acknowledge their time and contribution to data collection activities. Whānau (family) were also provided with a $10 book voucher to thank them for assistance at each data collection phase.

2.3 Reminiscing Measures

At each data collection time point, educators were asked to select an experience they had shared with the child and to 'discuss the event as they normally would' with the child. As such, educators were not asked to talk about an emotion-eliciting event or directed to talk specifically about mental states during the pre- and post-test reminiscing conversations. Conversations were video-recorded for later transcribing and coding. Reminiscing conversations at pre and post-test time points were transcribed verbatim from recorded video or audio recordings.

Educators' and children's utterances were coded for overall talkativeness, the type of utterance, elaborative style, and internal state content. First, the educators' and child's total amount of utterances during reminiscing conversation(s) were summated to obtain their Total Utterances. The function of each utterance was then coded according to Farrant and Reese's (2000) coding scheme. Essentially, each utterance was coded either as elaborative (open-ended questions, closed-ended questions, and statements), or a repetition (an utterance that does not provide new information to the conversation). Following coding for type of

utterance, elaborative utterances only were further coded for internal state, cognitive, and evaluative content using an adaptation of Bird and Reese's (2006) coding scheme. At least one of the following four central codes was assigned to every elaborative statement; Cognitive, Emotion, Affect, and Descriptive. A maximum of three additional sub-codes were then assigned in order to further categorise each central code. Briefly, this included labelling the term of interest as either positive, negative, or neutral; identifying whether the term was provided as an attribution or an explanation; and whether the term was in reference to the child and/or their experience, or to someone or something else. As cognitive content and emotional content were the variables of interest in the current study, they are discussed in greater detail below.

Cognitive content was coded if cognitive processes were explicitly referenced (e.g., 'do you *remember').* Cognitive content was provided with an additional code for whether it applied to the child, or to another person. Utterances containing references to the child's or another person's internal emotional state was coded as emotion content. Emotions included feelings (e.g., happy, scared, angry) or emotional behaviours (e.g., laughed, cried). Emotion content was coded as an attribution if the educator or child referred to or labelled an emotion state (e.g., 'he was sad'); or explanations if context and reasoning was provided to the emotion state (e.g., 'I was sad *because* he hit me'). Emotions were also classified as either positive, neutral, or negative in nature. As well, a code was applied if the utterance referred to the child, or to someone or something other than the child. It is noted that an utterance occasionally contained language that applied to multiple codes (e.g., 'I thought you were sad' contains both cognitive and emotion content). In these situations, the utterance was duplicated in order to assign the additional applicable codes. For a full description of the coding scheme used in the current study, see Appendix F.

The final coding scheme used in the current study to define internal state talk was adapted from the schemes described in Clifford, Reese, and Schaughency (2019), and Das (2019). Different types of each emotion or cognitive code (e.g., positive/negative/neutral valence; explanations and attributions; and talk about the child and others) were summated to form a total frequency of emotion terms, and a total frequency of cognitive terms. In line with recommendations from Das (2019) and (Lindheim & Shaffer, 2017), the proportion of emotion and cognitive terms used during the conversation(s) was also calculated. This was obtained by dividing the total frequency of the educators' (or child's) emotion terms (or cognitive terms), by the total number of utterances, and then multiplying this figure by 100, to obtain a percentage. Thus, the four main measures for educators and children were the total frequency of emotion terms used, the proportion of emotion terms use, the total frequency of cognitive terms used, and the proportion of cognitive terms used.

A PhD student and research assistant with a background in psychology and linguistics were responsible for the initial transcription and general reminiscing coding. This Master's student and the PhD student then completed the internal content coding. A reliability estimate (kappa) of .945 was calculated between raters for a 25% subsample of all transcripts, across time points. Disagreements in this subsample were then discussed and remediated through mutual resolution, and one coder coded the remaining transcripts.

2.4 Child measures of social-emotional and self-regulatory competence

2.4.1 Emotion Cause Knowledge Task (ECK; [Harris, Olthof, Terwogt and Hardman 1987; Wang, et al., 2006]).

The ECK task was selected to assess children's ability to identify potential causes of their own and other people's emotions (Harris, et al., 1987; Wang, et al., 2006). Wang et al. (2006) suggest that the version of the ECK task used in the current study is appropriate for children between the ages of three and six years old. Children are first asked 'what makes *you*

feel [EMOTION]' and prompted to continue until they indicate they are unable to volunteer a novel response. Next, children are asked 'what makes *people* feel [EMOTION]' and prompted until they are unable to provide novel responses. Researchers would move children to the next question when their responses were deemed to be repetitive (e.g., 'eating pudding makes me happy', followed by 'eating dessert makes me happy'). This process is repeated for the four emotions of sad, angry, scared, and happy. Responses were considered correct if deemed appropriate emotion-eliciting situations by the rater (e.g., monsters make me scared). Incorrect responses were those judged to be inappropriate emotion-eliciting situations (e.g., getting presents makes me scared), or naming emotion-irrelevant objects within the room (e.g., the door makes me sad). "Self-conscious" emotions (e.g., shame, guilt, and pride) as outlined in Yang and Wang (2016) were not included due to a high likelihood of floor effects caused by participant's low age and associated understanding of these emotions at earlier testing phases (Wang & Leichtman, 2000). The number of responses provided is tallied for a frequency count for a total sum for their own emotion states (ECK-self) and a total sum for other people's emotion states (ECK-other).

Previous studies have typically calculated a total frequency across self-and-other emotion knowledge rather than analyse responses separately for self and others (e.g., Wang et al., 2006). Prior research administering the ECK task on Chinese, American, and Australian children aged between three and six years old has reported substantial to excellent inter-rater reliability ($\kappa = 0.66–1$), (Van Bergen & Salmon, 2010a; Wang et al., 2006). Wang and colleagues (2006) research on samples of children (aged 30 – 43 months) reported that the ECK task (coded using a total frequency coding scheme) demonstrated concurrent validity with other tests of emotion knowledge including an Emotion Knowledge Task (Denham, 1986), and Wang (2003) reported moderate correlations with an Emotion Judgement Task. Wang et al. (2006) conclude that the ECK is an appropriate measure of emotion knowledge

across eastern (Chinese) and western (American) cultures and that greater understanding of emotions significantly predicted greater, more accurate autobiographical memory for past events, and later emotion knowledge.

Following the approach taken by Das (2019), responses for self- and others- will be examined separately in this thesis. To evaluate inter-rater reliability in the current study, a subset of 25% of children's responses across all four emotions for self and others were independently coded by this master's student and a PhD student. Coders were in substantial–perfect agreement with frequency tallies for both the self and other categories ($\kappa = 0.935$). Disagreements within the reliability subset were negotiated and agreed upon through mutual resolution. Once reliability was established, the two postgraduate students independently coded the remaining responses, with continued joint review of responses that were not readily classified.

2.4.2 Challenging Situations Task (CS; [Denham, Bouril, & Belouad, 1994]).

The CS task was selected to assess children's self-reported affective and behavioural responses across two hypothetical situations involving interpersonal difficulties with a peer that are likely to elicit unwanted emotions (Denham et al., 1994). The two situations chosen in the current study were being hit by another child, and having a peer refuse to play with them. Children are presented with a picture and brief description of each situation before the researcher asked: "what would you do if this happened to you". After the child provided a response, the child is asked: "what else would you do". In line with Bierman et al., (2008), responses are coded as competent, aggressive, passive, emotional expression, request for adult intervention, inept/incompetent or don't know (for the full scheme see Bierman et al., 2008). Competent responses were those deemed to represent an attempt at active non-aggressive conflict resolution (e.g., verbal assertion, negotiation, or finding an alternative activity). Responses coded as competent, and requests for adult intervention were combined

and analysed in this thesis to provide an independently assessed indicator of children's developing social problem-solving abilities. Research suggests that young children may rely more on their caregivers to resolve social conflicts (Tronik, 2007). With time (and by extension social-emotional development) children become more capable of navigating their own and others emotions, and engaging in ethical decision making (Devaney et al., 2005). Therefore, requests for adult intervention were included in the scoring scheme on the premise that they likely represent an age-appropriate active solution for achieving resolution to interpersonal conflict, without relying on overtly passive or aggressive solutions.

Prior research in a sample of 350 American children aged approximately four years old has shown self-reported behavioural responses to the situations contained in the CS task to have moderate internal consistency (α = 0.68-0.77) with almost perfect inter-rater reliability (κ = 0.94) between two trained research assistants (Bierman et al., 2008). Children's performance on the CS task (i.e., ability to identify competent responses) has demonstrated moderate correlations with parent ratings of social behaviour (Coy, Speltz, DeKlyen, & Jones, 2001; Denham et al., 1994), and teacher ratings of early school adjustment (Denham et al., 2013). Importantly, socially competent responses at age four were found to be predictive of teacher ratings of school adjustment a year later (Denham et al., 2013). The CS task has shown modest concurrent validity with other measures of emotion understanding (Schultz, Izard, & Bear, 2004), teacher perceptions of children's social and behavioural competence (LaFreniere & Dumas, 1996), and adjustment within the classroom (Ladd, Kochenderfer, & Coleman, 1997). As with the ECK task, inter-rater reliability was calculated by two independent coders across 25% of the sample at each time point (κ = 0.84-0.93 across time-points), before the remaining answers were coded by one independent rater. Disagreements within the reliability subset were negotiated and agreed upon through mutual resolution.

2.4.3 Heads-Toes-Knees-Shoulders (HTKS; [McClelland et al., 2014]).

The HTKS was selected as a measure of the numerous cognitive processes cornerstone to the development of self-regulation (Cameron Ponitz et al., 2009; Caughy, Mills, Owen, & Hurst, 2013). Wanless et al. (2011b) posit that the HTKS assesses the child's executive functioning with: paying attention to verbal instructions; relying on working memory to follow and complete novel behavioural rules; inhibiting natural (incorrect) responses and instead initiating unnatural (correct) responses; and, demonstrating cognitive flexibility and working memory when rules accumulate and change between sections. For a full description of the task, see McClelland et al. (2014).

The HTKS measure is a standardized task based on the popular song "head, shoulders, knees and toes". It requires no additional materials and has a suggested age range between four and eight years old. Each child completes up to three sub-sections depending on if progression requirements are met; with each section increasing in difficulty by adding and/or altering a rule. There are up to four pairs of behavioural rules: "touch your head" is paired with "touch your toes"; and "touch your shoulders" is paired with "touch your knees." In the first section participants are provided two behavioural pairings, and instructed to switch their responses to the instructions by completing the "opposite" movement (e.g., touch their toes when told to touch their head and vice versa). In the second section all four paired behavioural rules are introduced, and children are again instructed to complete the opposite movement (e.g., touch their shoulders when told to touch their knees and vice versa). In the third section the pairings are then switched (e.g., shoulders go with toes and head goes with knees), and children are again instructed to complete the opposite movement (e.g., touch shoulders when told to touch their toes and vice versa).

Each section involves four preliminary practice items so that children are provided an opportunity to learn the rules with the assistance of corrective feedback from the

experimenter. Each section involves 10 items, where the correct response provides two points, a self-corrected response provides one point (e.g., the child begins to move to an incorrect body part, but then changes to the correct response), and an incorrect response provides zero points. Participants are required to score four or more points on each sub-section to progress to the next subsection. The scores across the three sections are summed together to provide a total score between zero and 60, where higher scores indicate well-developed self-regulation skills (McClelland et al., 2014). Previous research has shown that young children perform poorly when the coding scheme described above is utilised (Fuhs, Nesbitt, Farran, & Dong, 2014; Lipsey et al., 2014).

Previous research has provided evidence to support the reliability and validity of the HTKS task as a measure of behavioural self-regulation in young children. McClelland et al. (2014) investigated technical adequacy of the HTKS task in a sample of 208 preschool-aged children (35 to 65-months old) from Pacific Northwest United States. The measure demonstrated high internal consistency (0.92–0.94), as well as good test-retest reliability with a moderate correlation ($r = .60$, $p < .01$) between children's scores six months apart. In support of the measures' construct validity, McClelland et al. (2014) reported that the HTKS assessed cognitive flexibility, working memory, and inhibitory control. In their study, the HTKS had moderate correlations with four direct executive functioning tasks including; the Three-Dimensional Change Card Sort (DCCS); the DayNight Stroop task; the Auditory Working Memory subtest from the Woodcock-Johnson III Tests of Cognitive Abilities; and the Simon Says task, across four phases of data collection, suggesting convergent validity with these measures. Furthermore, in preschool-aged children the HTKS significantly predicted growth across all academic outcomes, while the four measures listed above did not (McClelland et al., 2014).

Wanless et al. (2011b) reported that the HTKS demonstrated concurrent validity in samples of children aged 3.5 – 6.5 years old across four countries (America, Taiwan, South Korea, and China) when compared with educator ratings of behavioural self-regulation and general social skills on the Child Behaviour Rating Scale (CBRS) (Bronson, Goodson, Layzer, & Love, 1990), and parent ratings of attention and inhibitory control on the Child Behaviour Questionnaire (Rothbart, Ahadi, Hershey, & Fisher, 2001). HTKS performance has also been associated with various learning-related skills (McClelland et al., 2000) and social skills (Montroy, Bowles, Skibbe, & Foster, 2014). A recent New Zealand study investigated the relationship between HTKS performance and social and emotional processing (Dowling, 2014). Within a sample of 25 preschool-aged children (M= 4.5 years), HTKS scores had negative correlations with children's level of emotion intensity ($r = –.39$, $p<.05$) and aggressive behavioural responses ($r = –.42$, $p<.05$). Additionally, scores on HTKS correlated with memory recall ($r = .42$, $p<.05$), emotion perspective matching ($r = .56$, $p<.01$), and skills with identifying and explaining emotional responses ($r = .39$, $p<.05$).

Importantly, McClelland et al. (2014) outline that the HTKS may assess different processes across different age ranges. They suggest that younger children's inhibitory control capacity may largely determine their HTKS performance, with cognitive flexibility and attentional skills becoming more relevant for children aged between four to six years, and working memory increasingly contributing for children aged six years or above.

In the current study, coding of the HTKS involved double-data entry across participants and time points by two independent coders. Data checks were conducted via excel "check" functions, and the small number of discrepancies between coders caused by unintentional incorrect data entry were reviewed and remediated.

2.5 Data Analysis

Summary tables present data for each participant over each of the time points in which data was available. Summary tables include raw scores and relative changes across time points, following participation in specific modules. In instances where there appeared to be a meaningful pattern of results (i.e., relative improvement in scores between time points, replicated across a minimum of three participants (Kratochwill et al., 2013), raw scores were visually displayed on 'Line with Markers' graphs using Microsoft excel, in line with recommendations for presenting case series data (Skinner, 2013). In some instances, the use of Modified Brinley plots (see Brinley, 1965) were also used to illustrate children's relative improvement on social-emotional and self-regulatory measures between post-test one, and pre-test two. These plots were constructed using Microsoft Excel and interpreted using the guidelines set out by Blampied (2017).

As outlined by Horner et al. (2005) a number of statistical analyses are available as a means of testing the accuracy of interpretations generated from the visual analysis of results. Indeed, it is recommended that statistical analyses are utilized where possible in order to avoid experimenter bias and to strengthen the conclusions drawn from findings (Kratochwill et al. 2014).

Before conducting statistical analyses, the distributions for each variable and at each time point was checked to investigate whether the data met the assumptions for use of parametric statistics (as outlined in Field, 2013). Analysis of the skewness and kurtosis of educator's and children's use of emotion terms, children's use of cognitive terms, and children's social-emotional and self-regulation outcome measures indicated that there were many instances where data did not appear to be normally distributed. Specifically, variables that showed skew over 2 or under -2, and/or kurtosis over 5, and/or histograms did not appear normally

distributed upon visual inspection, were deemed to have likely violated criteria for normality (Field, 2013). In most instances this was likely due to a large number of zero scores on some measures, which is not uncommon in research with young children (Fuhs et al., 2014). As such, it was considered that it would be more appropriate to use non-parametric statistical procedures to analyse data. It is noted that in instances where data did appear to meet criteria for normality (e.g., educator's use of cognitive terms), analysis using parametric techniques revealed the same pattern of findings as did non-parametric techniques. Therefore, in order to adopt a unified and conservative approach to statistical analyses, only results of non-parametric analyses are reported in this thesis.

The median (*Md*) and Inter-Quartile Range (*IQR*; i.e., the 25th percentile and 75th percentile values) were selected as the most accurate non-parametric measure of central tendency (Pallant, 2013). The Mann Whitney U Test was used to investigate the differences between two independent groups (most often participants who initially completed the RRR module versus those who did not) on a continuous measure. The Friedman Test was used to investigate potential differences between scores on a continuous measure for the same group of participants, at three different time points (e.g., from pre-test, post-test one, and one year follow up). The Wilcoxon Signed Rank Test was used to investigate potential differences between scores on a continuous measure for the same group of participants, at two different time points (e.g., from post-test one to one year follow up). For a more detailed description of these tests, see Pallant (2013), or Field (2013).

In preparation for conducting more comprehensive analyses of reminiscing variables, inspection of educators' and children's overall talkativeness was undertaken. Results showed that across the three modules, educators general talkativeness (i.e., the total number of utterances they made during the reminiscing conversation), demonstrated considerable variability (pre-test *Md* = 72.0, *IQR*: 52.5, 103.0; post-test one *Md* = 59.0, *IQR*: 51.0, 111.5;

post-test two *Md* = 92.00, *IQR*: 60.75, 159.5; post-test three *Md* = 72, *IQR*: 72, 72). Additionally, children's general talkativeness across the three modules also demonstrated considerable variability (pre-test *Md* = 34.0, *IQR*: 22.0, 43.0; post-test one *Md* = 24.0, *IQR*: 17.5, 38.0; post-test two *Md* = 36.5, *IQR*: 19.0, 68.25; post-test three *Md* = 33, *IQR*: 33, 33). Given the amount of variability in both educator's and children's talkativeness, it was decided that the frequency of emotion and cognitive terms used may be less sensitive as measures of educator's and children's relative use, and change in use, of these terms. Other research has suggested that the use of proportion measures is conceptually robust as a means of documenting complex behaviour (Lindheim & Shaffer, 2017); and it also aligns with experimental research that has suggested measurement of specific behaviours as absolute frequencies may lead to counter-intuitive results (Lindheim, Shaffer, & Kolko, 2014). Therefore, the proportion of emotion and cognitive terms used during reminiscing conversations was most often selected as the measure of interest when conducting in-depth analysis, given that it controls for the overall level of talkativeness of the individual, and overall provides a more contextual understanding of the individual's use of language.

Results

Results are presented in order of the hypotheses. The first subsection presents results for educators' use of emotion and cognitive terms during reminiscing over time. The second subsection presents results for children's use of emotion and cognitive terms during reminiscing over time. The third subsection presents results for children's social-emotional and self-regulatory outcomes over time. Each section includes an overview of the descriptive statistics and discussion of the summary table of outcome variables for relevant participants (i.e., educators or children) across each available time point. Following this overview, graphs are presented to allow for visual analyses of suggestive findings. Additionally, statistical

analyses are also presented to evaluate the accuracy of interpretations in instances where there appeared to be a meaningful trend in results.

3.1 Educator's Reminiscing Language

Results show that educators' use of emotion and cognitive terms was variable at pre-test (emotion terms: *Md* = 1.63%, *IQR*: = 0%, 3.59%; cognitive terms: *Md* = 4.0%, *IQR*: 2.13%, 10.46%). At post-test one, educators' use of emotion terms appeared to decrease (*Md* = 0%, *IQR*: 0%, 1.0%), with 12 of 17 educators using no emotion terms in conversation. Educators' use of cognitive terms appeared to slightly increase relative to pre-test (*Md* = 7.97%, *IQR*: 4.21%, 12.15%). Six educators participated in a second module, and therefore had data available for analysis at post-test two. Results indicate that their use of emotion terms was higher (*Md* = 6.56%, *IQR*: 0%, 10.46%), while use of cognitive terms was slightly higher (*Md* = 13.19%, *IQR*: 8.01%, 18.02%). Results for the one educator at post-test three did not show an increase in emotion or cognitive language use, relative to their post-test two scores. Across time points educators appeared to use fewer emotion terms (*Md* = 0%, *IQR*: 0%, 3.51%) than cognitive terms (*Md* = 7.97%, *IQR*: 2.74%, 11.85%), although overall use of both cognitive and emotion terms was relatively low.

Table 2.

Educator's use of Emotion and Cognitive content during Reminiscing Conversations across the Three Modules

		Baseline				Post-Test 1						Post-Test 2						Post-Test 3					
Module Order	Educator	Emotion		Cognitive		Emotion			Cognitive			Emotion			Cognitive			Emotion			Cognitive		
		Frq	%	Frq	%	Frq	%	RC	Frq	%	RC	Frq	%	RC	Frq	%	RC	Frq	%	RC	Frq	%	RC
RRR→SSS→ ENGAGE	EDU-1	4	3.5	9	8.0	0	0	-3.5	6	8.2	**0.3**	11	10.2	**10.2**	19	17.6	**9.4**	0	0	-10.2	7	9.7	-7.9
	EDU-2	0	0	11	11.8	0	0	0	11	8.0	-3.9	10	6.5	**6.5**	15	9.8	**1.8**	*	*	*	*	*	*
	EDU-3	1	1.4	2	2.8	2	1.1	-0.3	18	9.9	**7.2**	0	0	-1.1	27	15.0	**5.1**						
	EDU-4	8	10.8	2	2.7	1	1.7	-9.1	15	25.0	**22.3**												
	EDU-5	2	3.6	5	9.1	2	3.5	-0.1	1	1.8	-7.3												
	EDU-6	1	0.8	4	3.1	0	0	-0.8	4	9.8	**6.7**												
	EDU-7	2	3.5	5	8.8	0	0	-3.5	11	21.6	**12.8**												
ENGAGE→**RRR** →SSS	EDU-8	0	0	6	19.4	0	0	0	3	7.7	-11.7	7	11.3	**11.3**	7	11.3	**3.6**	*	*	*	*	*	*
	EDU-9	1	2.0	2	4.0	0	0	-2.0	4	6.9	**2.9**	5	6.6	**6.6**	2	2.6	-4.2						
	EDU-10	2	3.4	7	11.9	0	0	-3.4	2	3.9	-7.9	0	0	0	11	19.3	**15.4**						
	EDU-11	8	1.1	0	0	0	0	-11.1	12	21.4	**21.4**												
	EDU-12	0	0	2	2.5	2	1.9	**1.9**	5	4.7	**2.1**												
	EDU-13	0	0	0	0	0	0	0	0	0	0												
	EDU-14	0	0	0	0	1	0.9	**0.9**	5	4.5	**4.5**												
SSS	EDU-15	6	10.3	1	1.7	0	0	-10.3	1	0.9	-0.8												
	EDU-16	0	0	14	12.3	0	0	0	8	13.6	**1.3**												
	EDU-17	3	1.6	12	6.5	0	0	-1.6	3	10.7	**4.2**												

Note: Frq = Frequency of terms used; % = percent of terms used ([frequency of term use/total utterances]x100); RC = Relative Change in percent of terms used, relative to the previous time point (time 2 percent of terms used – time 1 percent of terms used).
*RRR = Rich Reading & Reminiscing module, SSS = Strengthening Sound Sensitivity module; ENGAGE = Enhancing Neurobehavioural Gains with the Aid of Games and Exercise module. Bolded results indicate positive relative change. * Indicates missing data*

3.1.1 Post-Test One

Results from Table 2 show that at post-test one a majority of educators (11/17) across the three modules demonstrated positive relative change in the proportion of cognitive terms they used during reminiscing conversations with the children in their ECEC. The positive relative change in the proportion of cognitive terms used at post-test one was in the range of .3-22.3 percentage points, suggesting some variability on this measure. A Wilcoxon Signed Rank Test did not reveal a statistically significant increase in educators' proportion of cognitive terms used from pre-test to post-test one ($p = .215$). Results also show that educators generally did not use an increased proportion of emotion terms at post-test one relative to pre-test, irrespective of the module they participated in.

3.1.2 Post-Test Two

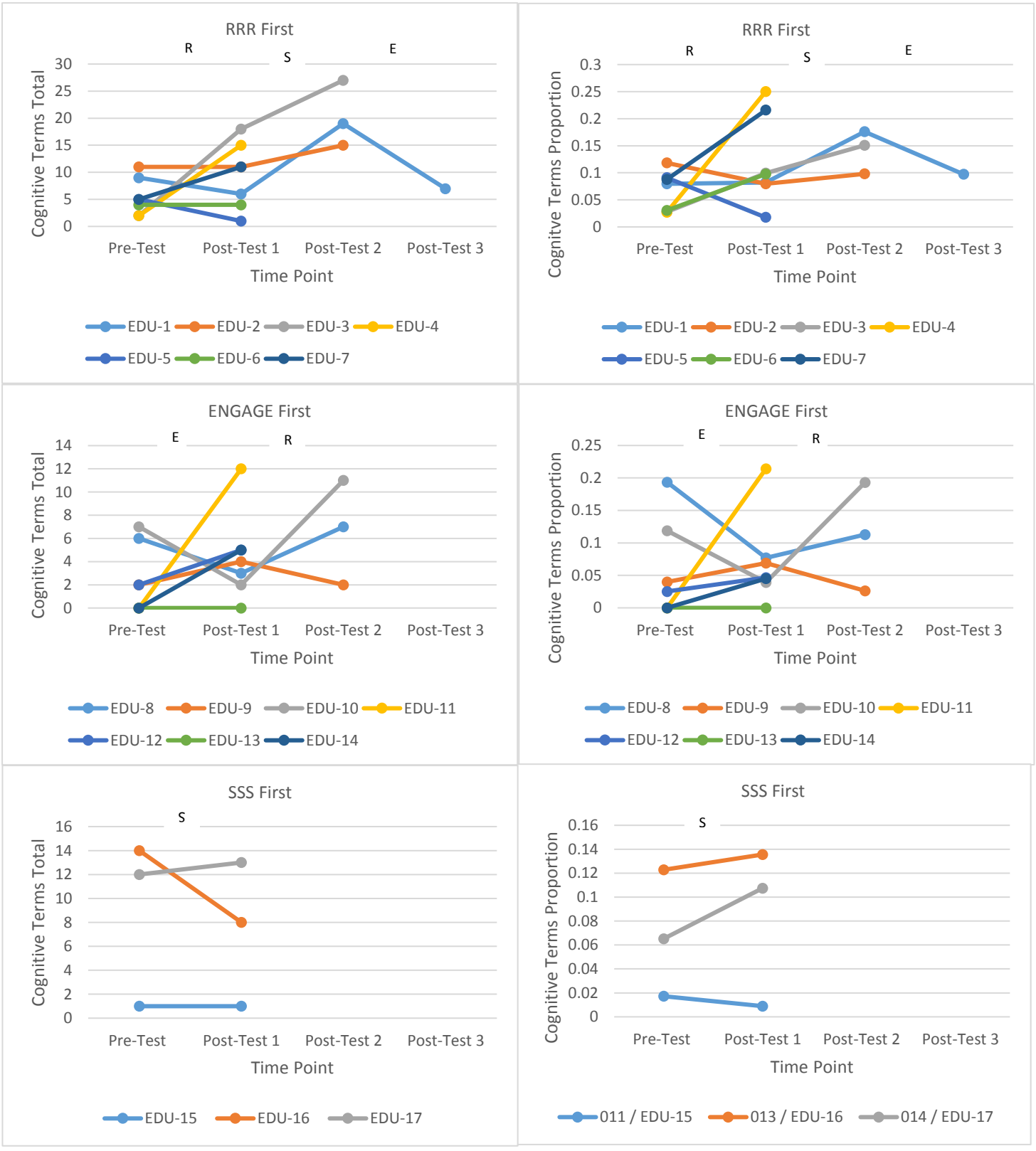
Results from Table 2 show that at the post-test two, some educators used a higher proportion of both emotion (4/6) and cognitive terms (5/6) during reminiscing conversations compared to at post-test one. This was for both educators who went on to complete the RRR module following completion of the ENGAGE module (2/3), and educators who completed the SSS module following completion of the RRR module (3/3).

3.1.3 Post-Test Three

The one educator who had available data for analysis used an increased amount of cognitive content from pre-test to post-test one following participation in the RRR module; and used more cognitive and emotion terms following participation in the SSS module. However, this educator did not use a greater proportion of emotion or cognitive terms from post-test two to post-test three, following participation in the ENGAGE module.

Figure 1

Frequency and Proportion of Cognitive terms used by Educators across Modules



RRR module, E = ENGAGE module, S = SSS module

3.1.4 Visual Analysis of Educator's Cognitive Content

As shown in Table 3 (see below) and Figure 1, of the seven educators who completed the RRR module first, three used a higher frequency of cognitive terms at post-test one, two educators used the same frequency, and two educators used a lower frequency. Additionally, all three educators who went on to complete the SSS module used a higher frequency of cognitive terms at post-test two. When the proportion of cognitive terms used during reminiscing is calculated (which controls for the level of talkativeness), results show that five educators who had completed the RRR module first used a greater proportion of those terms at post-test one, while two used a lower proportion. These findings suggest that more educators who initially completed the RRR module used relatively more cognitive terms during reminiscing than might have initially been concluded when evaluating only the frequency of cognitive terms used displayed in Figure 1.

Four educators out of seven who completed the ENGAGE module first used a higher proportion of cognitive terms at post-test one compared to at pre-test. Two educators who then completed the RRR module used a higher proportion of cognitive terms at post-test two. In all, 7/10 educators who completed the RRR module used a higher proportion of cognitive terms following module completion, relative to prior.

3.1.5 Summary of Educator's Reminiscing Language

Overall, results show that educators' use of emotion terms did not uniformly increase immediately following participation in the RRR module. There was evidence that some educator's proportional use of cognitive terms increased following participation in the RRR module; albeit this pattern of improvement was mirrored by educators in other conditions. The first hypothesis stated that educators would showcase an increase in their internal state talk (i.e., explicit use of emotion and/or cognitive terms) during reminiscing

conversations following participation in the RRR module. The available evidence was not sufficient to support the first hypothesis.

3.2 Children's Reminiscing Language

Results show that the proportion of emotion terms used by children at pre-test and post-test one was low (pre-test *Md* = 0%, *IQR*: 0%, 4.5%; post-test *Md* = 0%, *IQR*: 0%, 0%), with 18 out of 21 children using no emotion terms in the post-test one conversation. Children's proportional use of cognitive terms was variable at pre-test (*Md* = 5.0%, *IQR*: 0%, 9.76%), and overall appeared to decrease at post-test one (*Md* = 0%, *IQR*: 0%, 9.86%). At post-test two children's use of emotion and cognitive terms appeared to increase for the eight children with available data (emotion proportion *Md* = 6.48%, *IQR*: 2.54%, 10.53%; cognitive proportion *Md* = 7.8%, *IQR*: 4.03%, 19.93%). Results for the one child with available data at post-test three did not show an increase in their use of emotion or cognitive terms, relative to their post-test two scores. Children appeared to use less emotion terms (*Md* = 0%, *IQR*: 0%, 3.03%) than cognitive terms (*Md* = 4.17%, *IQR*: = 0%, 10.0%) across time points, although overall use of both cognitive and emotion terms was relatively low. This pattern of results was similar to those observed for educators.

Table 3.

Children's use of Emotion and Cognitive content during Reminiscing Conversations across the Three Modules

		Baseline				Post-Test 1						Post-Test 2						Post-Test 3					
Module Order	Child	Emotion		Cognitive		Emotion			Cognitive			Emotion			Cognitive			Emotion			Cognitive		
		Frq	%	Frq	%	Frq	%	RC	Frq	%	RC	Frq	%	RC	Frq	%	RC	Frq	%	RC	Frq	%	RC
RRR→SSS→ENGAGE	CHI-1	0	0	1	3.8	1	2.2	**2.2**	8	17.4	**13.5**	3	7.7	**5.5**	7	17.9	**0.6**	*	*	*	*	*	*
	CHI-2	0	0	4	16.0	0	0	0	4	21.1	**5.1**	1	2.9	**2.9**	7	20.6	**0.5**	*	*	*	*	*	*
	CHI-3	0	0	2	15.4	0	0	0	2	22.2	**6.8**	5	26.3	**26.0**	6	31.6	**9.4**	1	3.0	-0.3	0	0	0
	CHI-4	0	0	4	11.1	0	0	0	9	11.4	**0.3**	8	11.3	**11.3**	6	8.5	-2.9						
	CHI-5	1	2.7	0	0	0	0	-2.7	0	0	0	*	*	*	*	*	*						
	CHI-6	0	0	2	7.1	1	2.7	**2.7**	5	13.5	**6.4**	2	2.4	-0.3	3	3.6	-9.9						
	CHI-7	4	10.0	2	5.0	0	0	-10.0	0	0	-5.0												
	CHI-8	2	4.3	4	8.7	0	0	**4.3**	0	0	-8.7												
	CHI-9	0	0	2	3.4	0	0	0	0	0	-3.4												
	CHI-10	1	2.5	4	10.0	0	0	-2.5	1	5.3	-4.7												
ENGAGE→**RRR**→ SSS	CHI-11	0	0	1	5.5	0	0	0	0	0	-5.5	1	5.3	**5.3**	1	5.3	**5.3**	*	*	*	*	*	*
	CHI-12	0	0	2	6.3	0	0	0	0	0	-6.2	5	8.3	**8.3**	1	1.6	**1.7**						
	CHI-13	2	9.5	2	9.5	0	0	-9.5	0	0	-9.5	0	0	0	0	7.1	**7.1**						
	CHI-14	6	15.0	0	0	0	0	-15.0	1	4.2	**4.2**												
	CHI-15	0	0	0	0	0	0	0	0	0	0												
	CHI-16	0	0	0	0	0	0	0	0	0	0												
	CHI-17	0	0	0	0	0	0	0	1	3.4	**3.4**												
	CHI-18	0	0	0	0	1	5.6	**5.6**	0	0	0												
SSS	CHI-19	4	17.4	1	4.3	0	0	-17.4	0	0	-4.3												
	CHI-20	0	0	9	15.8	0	0	0	2	8.3	-7.5												
	CHI-21	4	4.7	3	3.5	0	0	-4.7	0	0	-3.5												

*Note: Frq = Frequency of terms used; % = percent of terms used ([frequency of term use/total utterances]x100); RC = Relative Change in percent of terms used, relative to the previous time point (time 2 percent of terms used – time 1 percent of terms used). RRR = Rich Reading & Reminiscing module, SSS = Strengthening Sound Sensitivity module; ENGAGE = Enhancing Neurobehavioural Gains with the Aid of Games and Exercise module. Bolded results indicate positive relative change. * Indicates missing data*

3.2.1 Post-Test One

Table 3 shows that five children who completed the RRR module first used a higher proportion of cognitive terms at post-test one, while one child used the same proportion, and four children used a lower proportion. Two of the children who showed relative increases in the use of cognitive terms also showed increases in their relative use of emotion terms, with a third child increasing in emotion talk but not cognitive talk, following initial completion of the RRR module. Fewer children who initially participated in ENGAGE or SSS module displayed increases in either cognitive or emotion talk following participation. Mann Whitney U Tests revealed no statistically significant differences in the proportion of emotion or cognitive terms used at pre-test or post-test one, for those who completed the RRR module first versus those who did not.

3.2.2 Post-Test Two

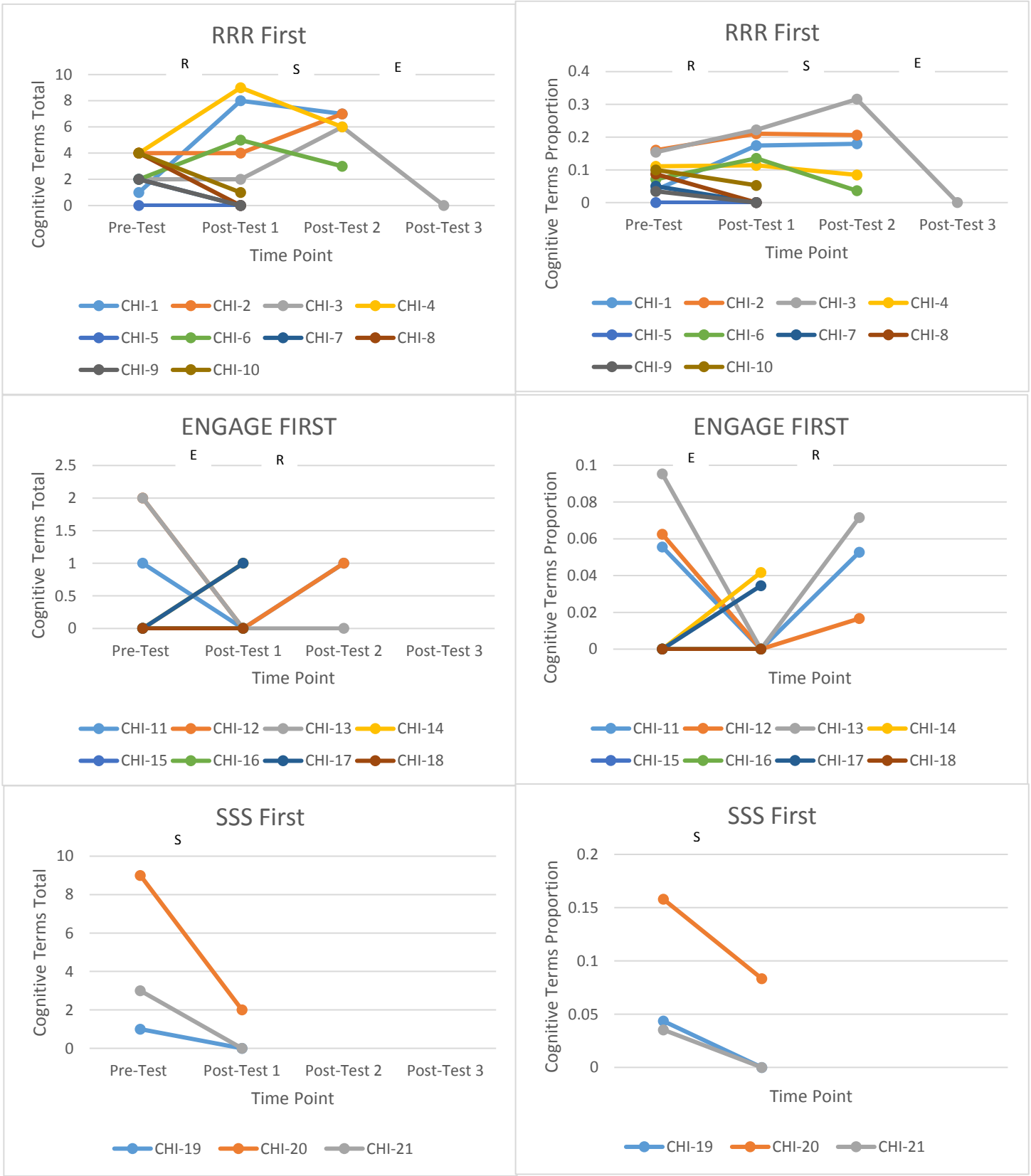
At post-test two, some children used a higher proportion of emotion (6/8) and cognitive (6/8) terms during reminiscing conversations. As educators, this was for children who went on to complete the RRR module following the ENGAGE module (2/3 used a higher proportion of emotion terms; 3/3 used a higher proportion of emotion terms), and those who completed the SSS module following the RRR module (4/5 used a higher proportion of emotion terms; 3/5 used a higher proportion of emotion terms).

3.2.3 Post-Test Three

The one child who had available data for analysis used an increased amount of cognitive content from pre-test to post-test one following participation in the RRR module, and used more cognitive terms following participation in the SSS module. However, this child did not use a greater proportion of emotion or cognitive terms from post-test two to post-test three, following participation in the ENGAGE module.

Figure 2

Frequency and Proportion of Cognitive terms used by Children across Modules



Note: R = RRR module, E = ENGAGE module, S = SSS module

3.2.4 Visual Analysis of Children's Cognitive Content

Figure 2 shows that two out of the seven children who completed the ENGAGE module first used a higher proportion of cognitive terms at post-test one relative to pre-test, while three children used a lower proportion. All three children who then went on to complete the RRR module used a higher proportion of cognitive terms at post-test two (however, those proportions at post-test two are still lower than at baseline). Altogether, 8/13 children who completed the RRR module used a higher proportion of cognitive terms following participation. This pattern of results would suggest that while participation in the RRR module was not uniformly associated with children's increased emotion or cognitive term use, it appeared to be associated with children's positive relative change in these areas more often than following participation in another module.

3.2.5 Summary of Children's Reminiscing Language

Like educators, children's use of emotion terms did not appear to increase immediately following participation in the RRR module. More than half of the children who completed the RRR module used a higher proportion of cognitive terms following participation, which was also observed for educators. The second hypothesis stated that children would showcase a parallel trend to their educators in their use of internal state talk (emotion and cognitive terms) during reminiscing. Overall, results did not show consistent increases in emotion or cognitive terms for either educators or children following participation in the RRR module. Given the lack of consistent, specific positive trends for both educator's and children's internal state talk following reminiscing, the available evidence was insufficient to support the second hypothesis.

3.3 Children's Social-Emotional and Self-Regulatory Outcomes

Children's performance on measures of social-emotional competence and self-regulation capacity was characterised by variability across measures, and across time. When examining results for all children (irrespective of module completion), up until post-test three it is difficult to identify a clear pattern of improvement on any of the three measures. At post-test three, the four children all had higher ECK-self scores and HTKS scores relative to post-test two; while two of four children had higher ECK-other scores and CS scores relative to post-test two. Overall, a majority of children obtained higher scores on all measures at their final post-test phase of data collection, relative to their pre-test scores (ECK-self: 18/21; ECK-other: 17/21; CS: 16/21; HTKS: 19/21). Also, a majority of children obtained higher scores at the one-year follow-up period, relative to their final post-test scores (ECK-self: 15/21; ECK-other: 17/21; CS: 14/21; HTKS: 16/21). In order to address the third and fourth hypotheses regarding the benefits of participation for children's developing social-emotional and self-regulatory competencies, the following sub-sections present results for each measure individually across the three time points.

Table 4.

Children's Self-Regulation and Social-Emotional Outcomes over Time

Module Order	Child	Baseline				Post-Test 1				Post-Test 2				Post-Test 3				One Year Follow Up			
		ECK		CS	HTKS	ECK		CS	HTKS	ECK		CS	HTKS	ECK		CS	HTKS	ECK		CS	HTKS
		S	O	C+R	Total	S	O	C+R	Total	S	O	C+R	Total	S	O	C+R	Total	S	O	C+R	Total
RRR→SSS→ENGAGE	CHI-1	9	6	2	0	4	4	1	**6**	0	0	1	**28**	**3**	**2**	1	**34**	**24**	**6**	**3**	**41**
	CHI-2	3	4	1	0	2	**7**	1	0	**3**	2	1	**51**	**7**	**5**	**2**	**53**	**18**	**23**	1	41
	CHI-3	8	5	1	0	**14**	**9**	**2**	**1**	2	2	**3**	0	**11**	1	2	**19**	**19**	**9**	**4**	8
	CHI-4	6	5	2	0	5	3	**3**	0	4	3	1	0					**10**	**10**	**3**	0
	CHI-5	0	0	0	0	0	0	0	0	0	0	0	**52**					**20**	**19**	**3**	36
	CHI-6	5	4	0	0	**9**	**5**	**1**	0	**26**	**21**	**3**	**30**					11	6	3	**49**
	CHI-7	8	2	5	9	8	**8**	4	0									**18**	**10**	**5**	**53**
	CHI-8	11	11	2	23	**23**	**13**	**3**	**35**									11	10	3	**43**
	CHI-9	4	1	0	0	**12**	**7**	**2**	**2**									**15**	**11**	**3**	**42**
	CHI-10	7	4	0	20	**20**	0	0	19									**22**	**16**	**4**	**51**
ENGAGE→**RRR**→SSS	CHI-11	5	1	0	2	**9**	0	0	**10**	7	**4**	0	4	**14**	3	**4**	**21**	**23**	**18**	1	**35**
	CHI-12	7	2	0	0	4	0	0	**23**	**6**	**3**	0	**57**					**10**	**8**	0	39
	CHI-13	0	1	2	13	**5**	0	0	**15**	**6**	**1**	**1**	8					5	**3**	1	**41**
	CHI-14	12	6	3	36	2	1	0	35									**6**	**5**	**9**	**53**
	CHI-15	1	1	3	0	**9**	**4**	0	0									7	**5**	**3**	**33**
	CHI-16	24	18	1	34	17	18	**3**	23									12	12	**4**	**34**
	CHI-17	10	9	0	2	9	9	0	**3**									**12**	**10**	**2**	**33**
	CHI-18	3	2	2	0	**7**	0	1	0									**8**	**6**	**4**	**1**
SSS	CHI-19	10	4	2	0	**14**	**9**	**4**	0									**15**	**10**	**5**	**35**
	CHI-20	7	4	1	10	**15**	**10**	**4**	**45**									12	5	2	**47**
	CHI-21	8	8	1	25	6	5	**3**	**26**									**13**	**16**	**4**	**46**

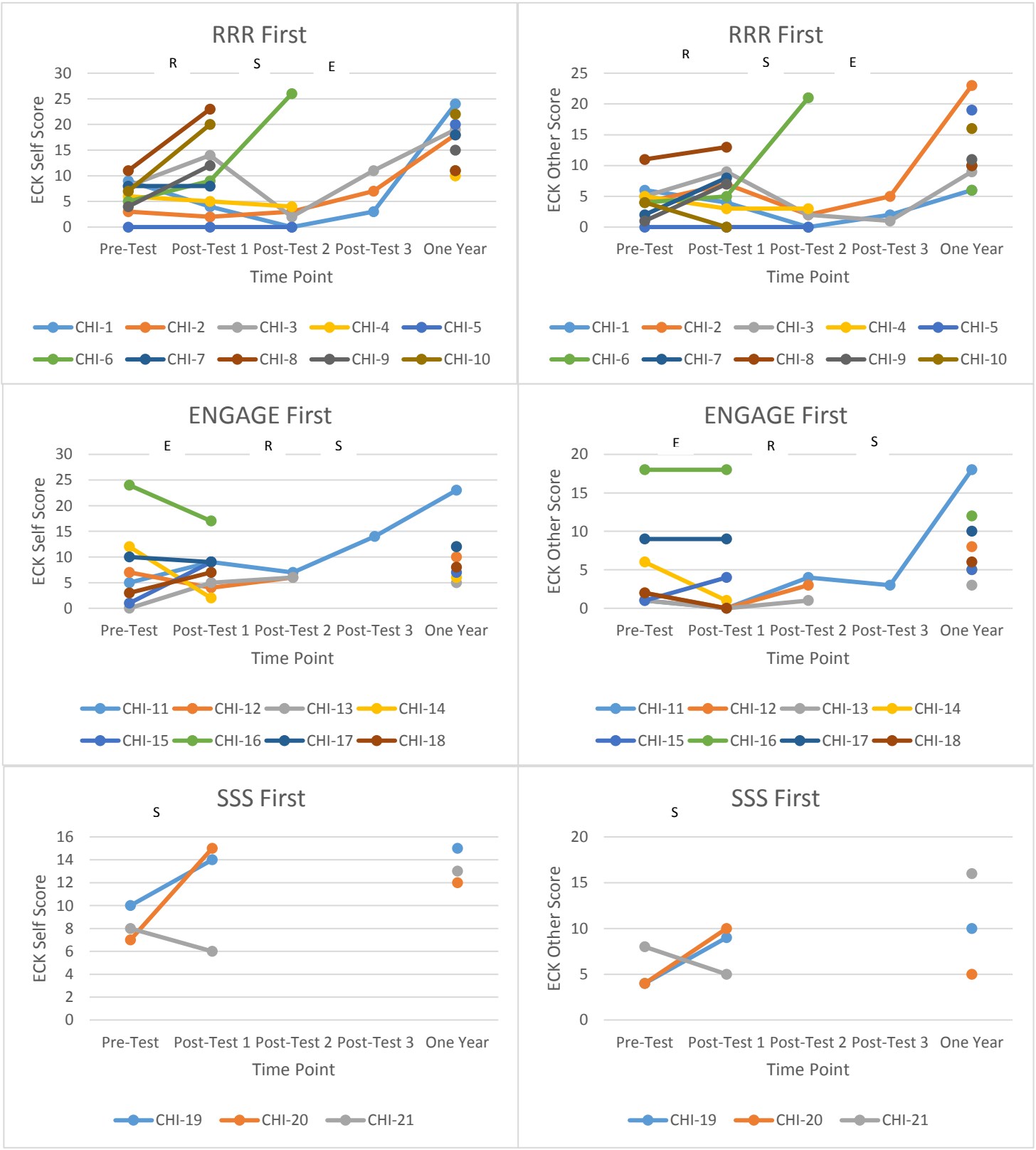
*ECK = Emotion Cause Knowledge Task; S = Self Score; O = Other Score; CS = Challenging Situations Task; C+R = Competent Responses plus Requests for Adult Assistance; HTKS = Head-Toes-Knees-Shoulders Task. RRR = Rich Reading & Reminiscing module, SSS = Strengthening Sound Sensitivity module; ENGAGE = Enhancing Neurobehavioural Gains with the Aid of Games and Exercise module. Bolded results indicate positive relative change. * Indicates missing data*

3.3.1 Emotion Cause Knowledge Results

Children appeared to have slightly higher ECK-self scores than ECK-other scores at pre-test (ECK-self *Md* = 7.0, *IQR*: 3.5, 9.5; ECK-other *Md* = 4.0, *IQR*: 1.5, 6.0), post-test one (ECK-self *Md* = 9.0, *IQR*: 4.5, 14; ECK-other *Md* = 5.0, *IQR*: 0, 9.0), and possibly at one year follow up (ECK-self *Md* = 12.0, *IQR*: 10.0, 18.5; ECK-other = 10.0, *IQR*: 6.0, 14.0). Encouragingly, 19 out of 21 children across the three modules obtained a higher ECK-self score at the one-year follow up time point, relative to pre-test. Furthermore, 17 out of 21 children had a higher ECK-other score at one year follow up, compared to at pre-test. Visual inspection of Table 4 suggests that at post-test one and post-test two, more children who completed the RRR module (at any time point) appeared to show improvement on the ECK-self (5/10) and ECK-other task (6/10), compared to children who completed the ENGAGE module (4/8 on ECK-self, but 1/8 on ECK-other); although 2/3 children who completed the SSS module obtained higher scores on both the ECK-self and ECK-other task at post-test one. Thus, there is some early indication that participation in the RRR module may have been associated with differential gains on the ECK task.

Figure 3

Children's Emotion Cause Knowledge (ECK) Scores over time by Module



Note: R = RRR module, E = ENGAGE module, S = SSS module

3.3.2 Visual Analysis of Children's Performance on the Emotion Cause Knowledge Task

Figure 3 shows that approximately half the children who initially completed the RRR module identified an increased number of causes of their own (5/10), and others (6/10) emotions at post-test one. Additionally, all three children who completed the RRR module following the ENGAGE module had increased self and/or other scores at post-test two. Children's performance at post-test two following completion of the SSS module was varied, but results show that all three children who then completed the ENGAGE module obtained a higher ECK-self score at post-test three (relative to post-test two). Overall, there are a number of findings that warrant further investigation.

ECK-self. The results of a Friedman Test indicated that there was a statistically significant difference in scores on the ECK-self measure across the three time points, for children who completed the RRR module first (pre-test, post-test one, one year follow up $X2$ (2, $n = 10$) = 12.054, $p = .002$). Inspection of the median values showed an increase in ECK-self score from pre-test ($Md = 6.5$) to post-test one ($Md = 8.5$) and a further increase at one year follow up ($Md = 18.0$). Post-hoc analysis using a Wilcoxon Signed Rank Test revealed a statistically significant increase in scores on the ECK-self measure from post-test one through to one-year follow-up, $z = 2.094$, $p = .036$, with a moderate effect size ($r = .47$). A Wilcoxon Signed Rank Test from pre-test to post-test one was not statistically significant ($p = .123$).

In contrast, a Friedman test conducted on ECK-self scores for children who did not initially complete the RRR module yielded non-significant results ($p = .105$). A Mann Whitney U Test revealed a statistically significant difference in ECK-self scores at one-year follow up between those who completed the RRR module first ($Md = 18$, $n = 10$) and those who did not ($Md = 12$, $n = 11$), $U = 25.0$, $z = -2.118$, $p = .036$, $r = .46$. Altogether, children who completed the RRR module first demonstrated differential improvement on the ECK-self task from pre-test through to one year follow up (which was underpinned by significant

growth between post-test one and one year follow up) and, on average, had statistically higher scores at the one year follow up time point, compared to children who did not complete the RRR module first.

ECK-other. The results of a Friedman Test indicated that there was a statistically significant difference in scores for children who completed RRR first across the three time points, (pre-test, post-test one, one year follow up X^2 (2, n = 10) = 8.432, p = .015). Inspection of the median values showed an increase in ECK-other score from pre-test (*Md* = 4) to post-test one (*Md* = 6) and a further increase at one year follow up (*Md* = 10). Post-hoc analysis using a Wilcoxon Signed Rank Test revealed a statistically significant increase in scores on the ECK-other measure from post-test one through to one-year follow up, z = -2.196, p = .028, with a moderate effect size (r = .49). A Wilcoxon Signed Rank Test from pre-test to post-test one was not statistically significant (p = .234).

For children who did not complete the RRR module first, the results of a Friedman Test indicated that there was also a statistically significant difference in children's scores on the ECK-other measure across the three time points, (pre-test, post-test one, one year follow up X^2 (2, n = 11) = 7.429, p = .024). Inspection of the median values showed no change in score from pre-test (*Md* = 4.0) to post-test one (*Md* = 4.0), while an increase in score was evident at one year follow up (*Md* = 8.0). However, post-hoc analysis using a Wilcoxon Signed Rank Test did not reveal statistically significant differences in scores on the ECK-other measure from pre-test to post-test one (p = .953) or from post-test one to one-year follow up (p = .082). Therefore, while all children generally displayed improvement on the ECK-other measure from pre-test through to one year follow up, children who completed the RRR module first displayed differential improvement from post-test one through to one year follow up. However, a Mann-Whitney U Test revealed no statistical differences in ECK-other

scores between those who completed the RRR module first and those who did not, at either post-test one or one year follow up.

3.3.3 Challenging Situations Results

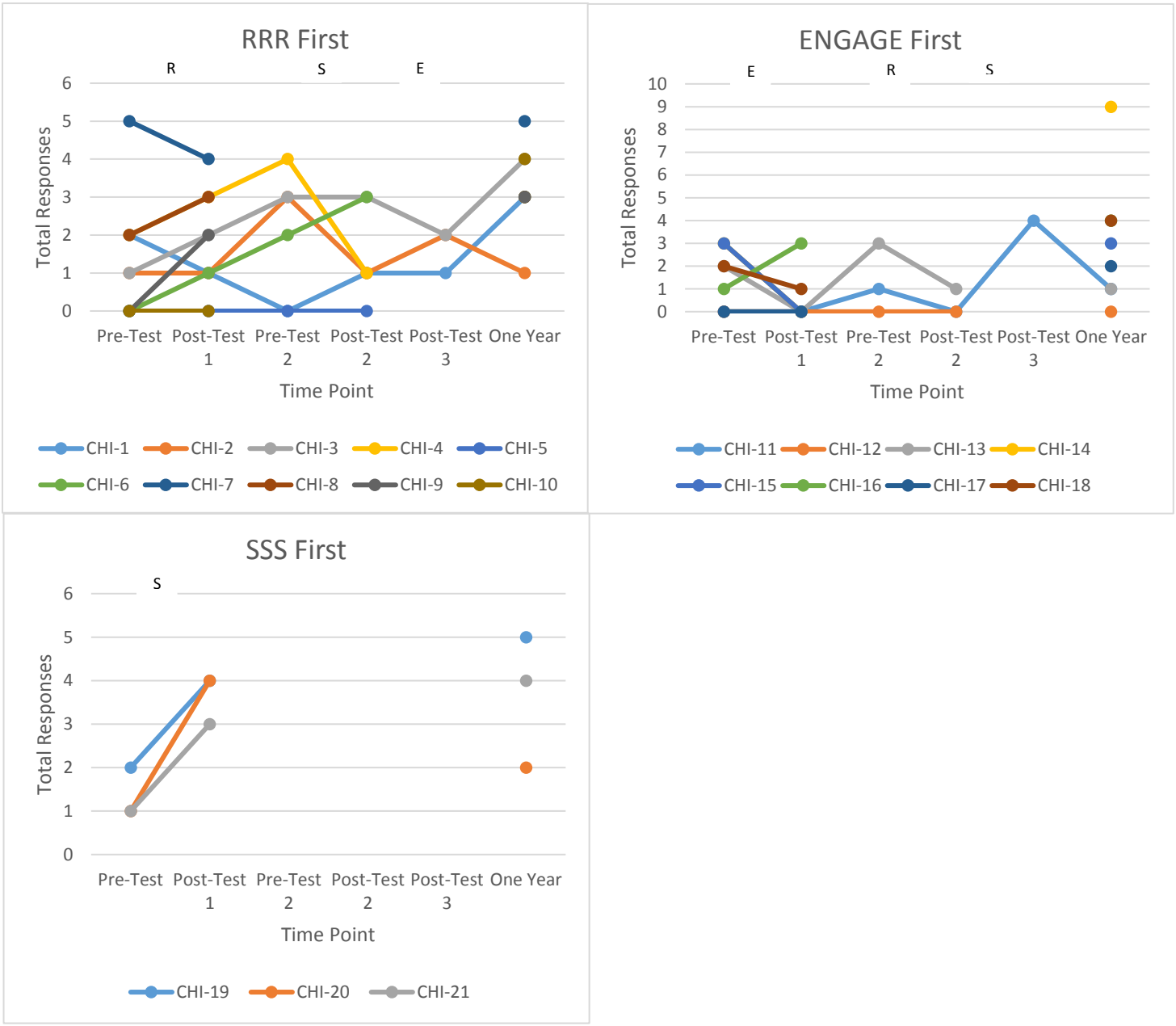
In terms of children's performance on the CS task, results were mixed and often displayed minimal or varied change over time. Exactly half of the children who completed the RRR module first displayed improved scores at post-test one. As Table 4 shows, there was no pattern of improvement for children who completed the ENGAGE module first, while the three children who completed the SSS module first all showcased improved performance at post-test one. Of the three children who completed the RRR module second, only one child had a higher score. At one year follow up all but one child identified at least one competent response and/or stated they would request adult intervention in response to a challenging situation.

A Wilcoxon Signed Rank Test revealed a statistically significant increase in all children's scores on the CS Task from post-test one through to one-year follow-up, $z = -3.184$, $p = .001$, with a moderate effect size ($r = .49$). Children's median score on the CS Task increased from post-test one ($Md = 1.0$) to one year follow-up ($Md = 3.0$). Consistent with this, further Wilcoxon Signed Ranks Tests between post-test one and one year follow up revealed improvement for those who completed the RRR module first ($z = -2.388$, $p = .017$, $r = .53$), and those who did not ($z = -2.172$, $p = .030$, $r = .47$). Furthermore, Mann-Whitney U Tests revealed no statistical differences in the number of responses provided on the CS task between those who completed the RRR module first and those who did not, at either post-test one or one year follow up. Thus, children generally demonstrated improvement on the CS task over time, and there was minimal difference between children who completed the RRR module first and children who did not. Part of the reason for the lack of differences in improvement as a function of module completion may be because the range of scores on the

CS task was relatively small; as there were only three occasions out of 75 where a child scored five or more points.

Figure 4

Children's Total Competent Responses plus Requests for Adult Intervention on the Challenging Situations Task over Time by Module



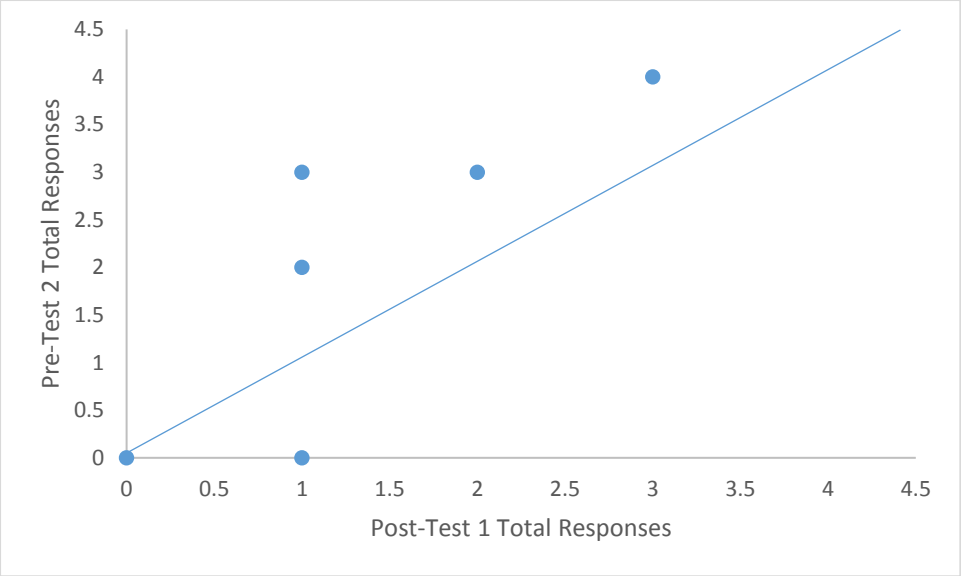
Note: R = RRR module, E = ENGAGE module, S = SSS module

3.3.4 Visual Analysis of Children's performance on the CS task

Interestingly, Figure 4 shows that a number of children obtained higher scores on the CS task during the shortened pre-test two data collection. This may indicate that some children who initially completed the RRR module displayed improved performance on CS prior to participation in their second module.

Figure 5

Modified Brinley Plot for Children's Total Responses on the CS Task at post-test one and pre-test two (for the six children who initially completed the RRR module)



Indeed, the pattern of results shown in Figure 5 suggest the presence of positive change following participation in the RRR module for four of six children – albeit with delayed effect. One child displayed no improvement with two scores of zero, and one child performed worse.

3.3.5 Head-Toes-Knees-Shoulders Results

Results from Table 4 show that children's scores on the HTKS task varied following participation in the RRR module (regardless of whether the RRR module was the first or second module completed). There were some children (4/10) who demonstrated improvement following initial completion of the RRR module, with considerable variability in the

magnitude of positive change in scores (range = 1-24). Notably, many children who initially participated in ENGAGE (4/8) also received higher scores on HTKS following completion of their first module. However, a number of children across all three modules demonstrated no change at post-test one, with repeated scores of zero. This might indicate that the task was too difficult for those children at those time points, as has been found for other young children (Fuhs et al., 2014; Lipsey et al., 2014).

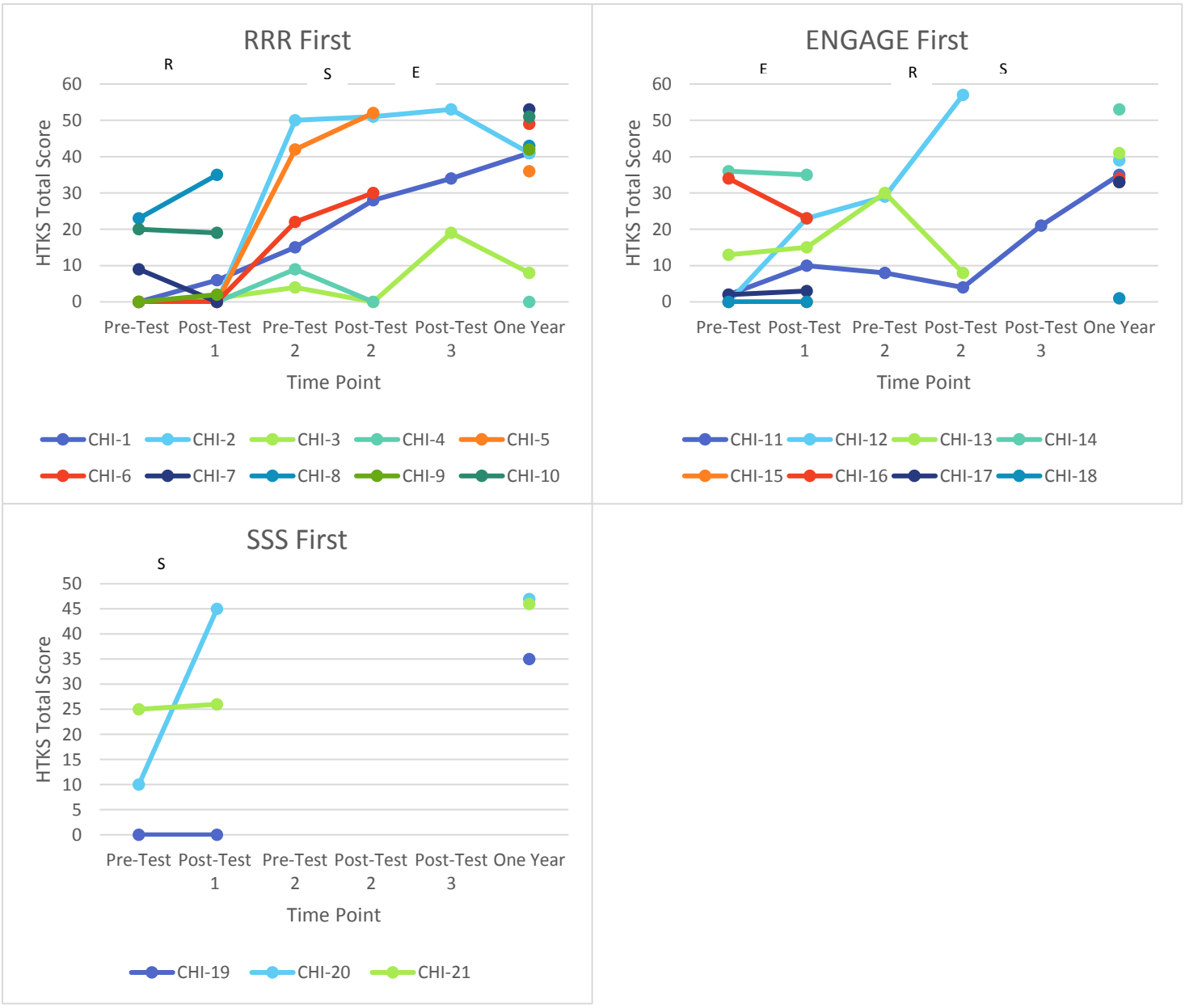
The results of a Friedman Test indicated that there was a statistically significant difference in all children's scores on the HTKS task across the three time points (pre-test, post-test one, one year follow up $X2$ (2, $n = 21$) = 32.082, $p < .001$). Inspection of the median values suggests an increase in average scores from pre-test (Md = 0.00) to post-test one (Md = 3.00), with a considerable increase in scores at one year follow up (Md = 41.00). A Wilcoxon Signed Rank Test did not reveal a statistically significant increase in scores on the HTKS Task from pre-test through to post-test one ($p = .108$), whereas a Wilcoxon Signed Rank Test revealed a statistically significant increase in scores on the HTKS Task from post-test one through to one-year follow-up, $z = -3.920$, $p < .001$, with a large effect size ($r = .60$).

This process of statistical analyses was repeated (i.e., Friedman Test followed by a Wilcoxon Signed Rank Test between pre-test and post-test one; and between post-test one and one year follow up) for those who completed the RRR module first, and those who did not. Consistent with the results for the entire sample, both groups demonstrated statistically significant change over time on the Friedman's Test, and on the Wilcoxon Signed Rank Test between post-test one and one year follow up, but not between pre-test and post-test one. Thus, the general pattern of improvement on the HTKS appeared similar for those who completed the RRR module first, and those who did not. Mann Whitney U tests conducted at the pre-test, post-test one, and one year follow up time points did not reveal statistically

significant differences in scores between those who completed the RRR module first, and those who did not.

Figure 6

Head-Toes-Knees-Scores (HTKS) scores over time for children by module



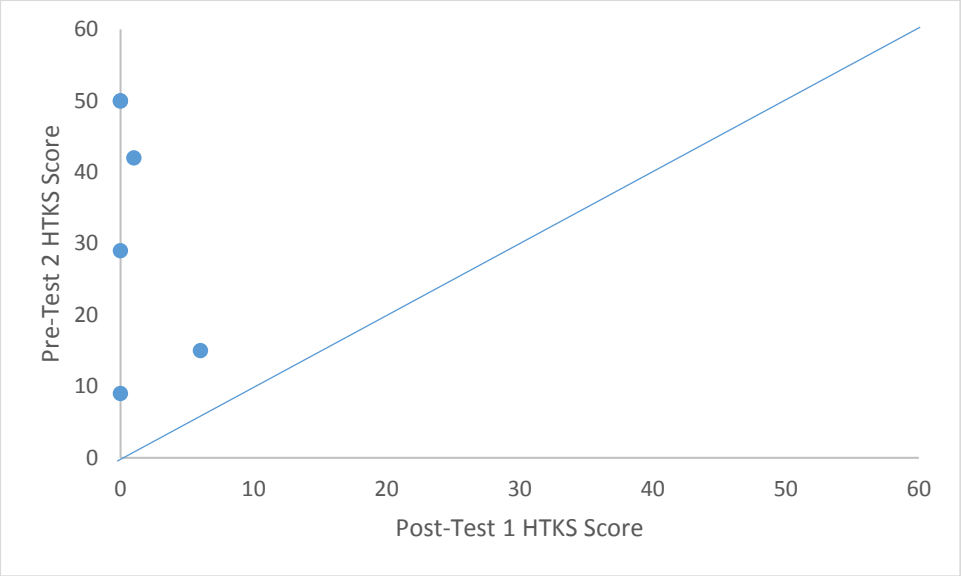
Note: R = RRR module, E = ENGAGE module, S = SSS module

3.3.6 Visual Analysis of Children's performance on the HTKS Task

Figure 6 shows that two of the 10 children who completed the RRR module first obtained a higher HTKS score at post-test one, relative to their pre-test score. However, all six children who went on to complete the HTKS during the shortened pre-test two time point obtained a higher score on the measure. The median score on the HTKS Task increased from post-test one (*Md* = .50) to one year follow up (*Md* = 35.50).

Figure 7

Modified Brinley Plot for Children's HTKS scores at post-test one, and pre-test two



Note: there are six data points, however two children both obtained a score of zero at post-test 1, and a score of 50 at pre-test 2.

Because these children had only participated in the RRR module at the pre-test 2 data collection phase, this pattern of results suggests that participation in RRR may have been associated with improved performance on the HTKS – albeit with a delayed effect. This pattern of results was also observed on the CS task for most (4/6) of these children.

It is also noted that 7/10 children who completed the RRR module first scored more than 40 at the one year follow up period, compared to 2/8 of the children who completed the ENGAGE module first, and 2/3 children who completed the SSS module first. A score of >40

indicates that children achieved well on the first two subsections on the HTKS, and then progressed to the final and most difficult subsection. Unfortunately, this type of improvement is not necessarily able to be detected by various statistical methods employed in the current thesis.

Thus, overall, children who initially completed the RRR module showed improvement on the HTKS task especially between post-test one and pre-test two, and then between post-test one and one year follow up. The results from various non-parametric repeated measures analyses suggest that their performance was comparable to that observed for children in other modules. However, a closer inspection of their performance at the one-year showed they progressed to the most difficult subsection of the task more consistently than those who initially completed another module.

3.3.7 Summary of Children's Social-Emotional Outcomes

Results showed that over half of children who completed the RRR module had higher ECK-self and/or ECK-other scores following completion of the module. Furthermore, non-parametric repeated-measures analyses revealed that children who had completed the RRR module first had a significant level of growth in ECK-self and ECK-other scores from post-test one through to one year follow up, whereas children who initially completed another module did not. Additionally, children who completed the RRR module first had significantly higher scores on the ECK-self task at one year follow up, compared to children who initially completed another module.

Results showed that roughly half of the children's scores on the CS task improved following completion of the RRR module. Furthermore, there was some evidence suggestive of improvement at the pre-test two phase, relative to post-test one. However, most children (across the three modules) had higher scores on the CS task at the one-year follow-up period relative to pre-test and post-test, and there was a lack of evidence suggesting that children

who completed the RRR module consistently performed any differently from those who had not. Altogether, it seems unlikely that participation in the RRR module led to differential gains in performance on the CS task for children in the current study.

Overall, children's performance on measures of social-emotional competence was encouraging. Some children demonstrated improvement on the ECK-self and/or the ECK-other and/or the CS task, and general trends suggest that children's scores improved over time through to the one year follow up. Further, children who completed the RRR module showed differential improvement on the ECK task, indicating some specific benefits for participation. The available evidence was sufficient to support the third hypothesis that children's independently assessed social-emotional competencies would differentially improve as a function of participating in the RRR module alongside their educator, and that these changes would be maintained through to the one year follow-up period.

3.3.8 Summary of Children's Self-Regulatory Outcomes

For the subset of children with a second data point from pre-test two, before they participated in the second module, results showed that children who initially completed the RRR module had greater HTKS scores at pre-test two relative to pre-test one. Results showed that overall, most children displayed increased scores through to the one year follow up period, and there did not appear to be statistically significant differences on year follow up HTKS scores between children who completed the RRR module and those who did not. However, a closer inspection of children's performance at the one-year period showed children who completed the RRR module first progressed to the more difficult subsection of the task more consistently than those who initially completed another module. This might indicate the presence of differentially improved performance on the HTKS at one year follow up, even if statistical analyses conducted did not capture this. The fourth hypothesis predicted that children's self-regulatory competencies would differentially improve as a function of

participating in the RRR module alongside their educator, and that these changes would be maintained through to the one year follow-up period. There was promising evidence suggesting that children who completed the RRR module displayed gains in performance prior to participation in their second module, with many showing qualitatively good performance at the one year follow up period. This evidence provides some preliminary support for the fourth hypothesis.

Discussion

This thesis presents an examination of how educators' and children's interactions and children's developing social-emotional competencies were associated with participation in the three PLD modules. Given the proposed theoretical benefits of adult-child reminiscing for children's social-emotional development (Salmon & Reese, 2015; Salmon & Reese, 2016), the discussion involves evaluation of how participation in the RRR module influenced educators' and children's use of emotion and cognitive language during reminiscing; and children's later social-emotional and self-regulatory outcomes.

4.1 Educators Reminiscing Language

Preliminary analysis of results indicated that there was considerable variability in the educator's level of talkativeness, both within and across time points, hence this variable was not further analysed. This contrasts previous findings that have shown educators who receive PLD designed to facilitate skills associated with reminiscing tend to use a higher amount of utterances over time (Timperly et al., 2019). Educators who initially completed the RRR module did not show positive relative change in proportional use of emotion terms from pre-test to post-test. Furthermore, the magnitude of positive relative change in the proportion of cognitive terms used was not statistically greater than that observed for educators who participated in other modules. Overall, there was insufficient evidence to support the

hypothesis that educators' use of internal state talk (i.e., explicit references to emotions or mental states) during reminiscing conversations would increase following participation in the RRR module.

It is noted that a majority of educators used a higher proportion of cognitive terms following RRR module completion. Additionally, findings showed that educators who went on to complete the SSS module after the RRR module all used a higher proportion of cognitive terms. It is difficult to ascertain whether this was directly due to participation in the SSS module, or due to a delayed effect following earlier completion of the RRR module, or due to other unknown variables (e.g., increasing age). Previous research has shown delayed effects in parent's relative use of elaborations up to six months after training (Van Bergen et al., 2009), hence similar pathways may operate for educator's reminiscing interactions. Theoretically, educators may continue to use high(er) proportions of mental state language post-module completion, which was unable to be captured during the timeline adopted by the current study. Therefore, it is possible that participation in the RRR module facilitated increased use of mental state language during reminiscing following participation for some educators in the current study.

It is important to appreciate that the RRR module training and delivery did not include explicit instructions for educators to use more internal state talk during reminiscing conversations. It was considered that direct requests for educators to alter their language style during reminiscing might be too demanding or unnatural. The available evidence suggests that effective PLD should build on the activities and experiences that educators independently engage in with the children in their ECEC (Paulsell et al., 2010). The types of shared reading experiences promoted in the current study are common-place activities in early childhood education in New Zealand (Education Research Office, 2011), and a familiar context for educator–child oral language interactions that can accommodate discussion of socio-

cognitive themes in a naturalised manner (Gest et al., 2006; Vacca & Vacca, 2005). Therefore, educators were directed to follow more generalised techniques during reminiscing such as using open-ended / wh- questions, combined with directed shared talk about mental states and emotions via prompts during shared book reading, followed by prompts for reminiscing about positive and negative experiences related to story themes. It may be that these generalised exercises do not necessarily promote educators use of internal state talk during reminiscing, as has been shown in past research that has sought to enhance parents' elaborative style during reminiscing (Boland et al., 2003; Van Bergen et al., 2009).

It is important to attempt to explain why educators' use of emotion terms appeared to decrease following participation. First, as stated above the overall level of talkativeness was highly variable across educators and time points, making it difficult to ascertain whether or not possible changes in the total amount of talkativeness may have contributed to the relative decrease in the use of emotion terms. It is entirely possible that educators consistently use few emotion terms in typical conversations with children. Andrews et al., (2019) found that educators used more elaborative terms with older children, and concluded that educators may alter their conversational style to meet children's developmental needs. Thus, it is possible that educators used fewer emotion terms at earlier time points as the children in their care were too young to reciprocate conversations about emotions. In support of this explanation, 4/6 educators used a higher proportion of emotion terms at post-test two, which may be because the children in their care were older and thus more able to understand and reciprocate conversations about emotions.

It is also crucial to note that the reminiscing outcome variables were obtained from just one conversation between educators and the children in their care. This provides only a glimpse into the true nature of the educator-child interactional and conversational styles. While there is a general lack of consistency in techniques used to explore the differences in

teacher-child language interactions across classroom settings, a common finding is that the quantity and quality of teachers language during interactions is highly variable, and influenced by several factors (Gest et al., 2006). Several factors may have negatively influenced the accuracy and validity of the recorded conversations in terms of their representation of the typical conversations educators and children share on a daily basis. For example, it was considered that the use of the video recordings to document conversations may have been off-putting, or even anxiety-provoking for some educators. They may have worried about recordings being used for performance appraisal or being identified and evaluated by their supervisors.

During the delivery of the RRR module educators were prompted to initiate reminiscing conversations about the positive and negative events contained in the storybook they had just completed during shared book reading. However, educators were not asked to talk about an emotion-eliciting event (or any specific event) during the pre- and post-test interactions, which may have increased their use of emotion terms specifically, as past research has shown parents' use of emotion terms is greater when discussing negative events (Fivush et al., 2003; Fivush & Wang, 2005). This discrepancy in the guidelines for reminiscing conversations between the delivery and testing phases may underlie educators' apparent lack of emotion term use following module completion. Alternatively, it could be that educators' reminiscing style and language use did change from pre-test through to post-test, but the outcome variables selected for analysis did not detect these changes. Other research in NZ home-based ECEC settings has shown that participation in the RRR module was positively associated with educators' amount of overall talk, the number of questions they asked, and links between shared reading content and the child's personal experiences (Timperly et al., 2019). Thus, further analysis of other available outcome measures in the current study might yield similar results.

4.2 Children's Internal State Talk following Reminiscing

There was insufficient evidence to support the second hypothesis that children would showcase a parallel trend to their educators in use of internal state talk (emotion and cognitive terms) during reminiscing, following participation in the RRR module. Children's use of emotion terms was variable after participation in the first module, with some children who participated in RRR with their educators displaying positive change, with the remainder of children who participated in other modules showing negative change or no change. This was a more positive finding than those for educator's use of emotion terms, although it still suggests that participation in the RRR module did not have a consistent or meaningful impact on children's use of emotion terms during reminiscing conversations at post-test.

Regarding mental state language, more children used a higher proportion cognitive terms following initial completion of the RRR module (5/10 after 1st module, compared to 2/11 who did not initially participate in RRR). These are important findings, as numerous researchers have posited that bi-directional relationships exist between children's language, social-emotional, and self-regulatory capacities (Cole, Armstrong & Pemberton, 2011; Durlak et al., 2011; Skibbe et al., 2019). Thus, observable differences in the way some children reflected on and discussed mental states may contribute to positive changes in other developmental domains (Wareham & Salmon, 2006).

Again, it is important to attempt to explain the lack of change in some children's use of emotion terms during reminiscing. It could be that the timeline adopted by the current study did not allow for sufficient opportunity for children to display a positive relative change in their use of emotion-based language following module completion. For example, Kuebli and colleagues (1995) investigated children's use of emotion-based language during reminiscing at three time points (40 months of age, 58 months of age, and 70 months of age). Findings showed that children's use of emotion-based language and initiation of

conversations increased significantly throughout the study. Children in the current thesis were between 40 months and 60 months old at the time of testing, with the project time-line allowing about two-three months between reminiscing conversations. Thus, it is possible that positive impacts of reminiscing on children's use of emotion-based language may not have been apparent for some children.

Similarly, it is imperative to acknowledge that the reminiscing conversations used to assess children's use of emotion terms represent just one out of potentially hundreds of conversations children have with their educators each day. There may have been variability in the event selected for discussion, the intensity of the emotion(s) experienced by the child, or the personal relevance or salience of that event for the child (Das, 2019). Additionally, children may have been fatigued at the time of the conversation, or conversations may have been susceptible to any other combination of other situational factors that reduced children's use of emotion terms. These factors may have meant that the conversation that happened to be assessed in the current thesis may not have been particularly conducive to a discussion around emotions. There were 6/8 children who used a higher proportion of emotion terms at post-test two. It is possible that once children are older (and thus theoretically have better-developed social-emotional skills), the reminiscing conversations were less susceptible to factors listed above that are thought to reduce talk about emotions.

In conclusion, some educators and children's use of mental state talk increased following participation in the RRR module. The small n nature of the study precluded statistical analyses of the correlation between educators and children's relative increase in mental state talk over time. Thus, it is inappropriate to assert that educators' use of mental state talk was directly linked with children's relative change in mental state talk - there may be numerous pathways involved. However, past research has found that parents' use of internal state terms positively predicted children's use of mental state language (Fivush &

Haden, 2003; Ontai & Thompson, 2002; Rudek & Haden, 2005). Furthermore, findings from Andrews et al. (2019) showed statistical associations between educators' and children's total number of elaborations across a range of conversation types. While the outcome variables of Andrews et al. (2019) study were different to those in this thesis, the premise still holds that educators' language exerts important benefits for children's language (Peterson et al., 1999; Sales & Fivush, 2005; Timperly et al., 2019). The current findings offer supplementary support for the notion that educator-child shared talk may exert important benefits for children's language development (Andrews et al., 2019; Carr, 2011).

4.3 Children's Social-Emotional Outcomes

The third hypothesis stated that children's independently assessed social-emotional competencies would differentially improve as a function of participating in the RRR module alongside their educator, and that these changes would be maintained through to the one-year follow-up period. There was some evidence to support this hypothesis. Children's understanding of the causes of their own and others' emotions was assessed on the ECK task. Results showed that a majority of children who completed the RRR module (either first or second) identified a greater number of causes of their own and/or others emotions at the relevant post-test, relative to pre-test. Children who initially completed the RRR module also displayed statistically significant growth in ECK-self and ECK-other scores from post-test one through to one year follow up, whereas children who completed another module first did not. When this timeline was extended, children who completed the RRR module first also displayed statistically significant growth in ECK-self scores from pre-test through to one year follow up. Lastly, children who completed the RRR module first had statistically higher ECK-self scores at one year follow up than those who did not. These are promising findings that suggest participation in the RRR module exerted specific benefits for children's emotional understanding, which may grow over time. Therefore, it appears that participation

in the RRR module was associated with differential developmental gains in social-emotional domains for children in the current study.

Several studies have found associations between parents' reminiscing conversations and children's later emotion understanding (Goodvin & Romdall, 2013; Laible, 2004a; Laible & Song, 2006; Van Bergen & Salmon, 2010b; Wareham & Salmon, 2006). Kuebli, Butler & Fivush, (1995) found that the number of emotion terms used by children increased over time, in relation to their parents' use of emotion state language during reminiscing conversations. Moreover, associations have been identified between mothers' explicit references to emotions during reminiscing and children's self-awareness (Laible & Thompson 2000). Interestingly, the current study showed that educators' use of emotion terms (both the frequency and proportion) during observed reminiscing conversations were relatively low, and did not increase following completion of the RRR module. Therefore, it cannot be concluded that increased exposure to emotion terms during reminiscing per se led to children's apparent increase in emotional understanding on the ECK. It is possible that different mechanisms underpinned the relations between children's participation in the RRR module and increased emotional understanding. Nevertheless, the current findings add to the existing literature and suggest that participating in home-based ECEC module that supported conversations about social-emotional content during shared book reading and related reminiscing conversations, may have promoted children's social-emotional development.

Regarding the Challenging Situations Task, most children had higher scores at the one-year follow-up period relative to pre-test and post-test. Furthermore, 4/6 children who participated in RRR made significant improvements between post-test one and pre-test two. This suggests that in some instances the RRR module may have been associated with children's improvement in social problem-solving over time. Past research has identified associations between reminiscing and social problem-solving. In particular, Leyva and

colleagues (2014) found that caregivers' use of elaborations during reminiscing about negative events was associated with children's later social problem-solving on the Challenging Situations task. Additionally, Ontai and Thompson (2008) found that discussion about negative events negatively predicted children's aggressive behaviour, supporting the idea that reminiscing assists children's actual conflict resolution behaviour.

However, there was a lack of evidence suggesting that children who completed the RRR module outperformed those who had not on the CS task. Thus, most children displayed an increased ability to identify competent responses or indicated they would enlist the support of an adult in response to a hypothetical challenging interpersonal situation at later time points, so it seems unlikely that participation in the RRR module led to differential gains for the children in the current study. It is also possible that any gains that might have occurred were not detected by the CS task. This idea is plausible, as the CS task does not typically yield a high variance in total responses. Because children are asked only a total of four times "what would you do if this happened to you?" it may not be obvious to children that they could provide more than one response per question, which would theoretically increase the chances of identifying a competent response or indicating for adult assistance. Thus, the CS task may not be suitable for detecting a change in a child's social problem solving over time.

4.4 Children's Self-Regulatory Outcomes

The fourth hypothesis stated that children's self-regulatory competencies would differentially improve as a function of participating in the RRR module alongside their educator, and that these changes would be maintained through to the one year follow-up period. The available findings provided some support for this hypothesis. All six children who initially completed the RRR module showcased significant improvement at pre-test two relative to post-test one, suggestive of developmental gains. Statistical analyses between children who completed the RRR module first and those who did not reveal minimal

differences in scores at any one time point on the HTKS task. However, an inspection of scores at one-year follow-up indicated that 7/10 children who completed the RRR module first progressed to high scores (> 40), which is suggestive of performance at the more cognitively demanding level of the HTKS task. Thus, while the quantitative analyses of scores suggested minimal differences between those who completed the RRR module and those who did not, these qualitative analyses suggest that children who completed the RRR module had a greater understanding of the change in behavioural rules and better-developed self-regulatory capacity. Thus, some children who completed the RRR module may have shown some initial improvement on the HTKS task following participation, with many demonstrating qualitatively strong performance at one year follow up.

These findings are consistent with the few past studies exploring the relationship between reminiscing and self-regulatory outcomes (Laible & Thompson, 2006; Leyva & Nolivos, 2015 Sales & Fivush, 2005). While these studies were able to link certain features of reminiscing to self-regulatory competence (e.g., open-ended questions, frequency of negative emotion state terms, and emotional explanations), these types of analyses were not possible in the current study. It is possible that experiences in RRR provided children with valuable experience attending and listening to conversational prompts, and following along with educators' questions and requests during shared book reading and other discussions. These experiences may promote broad skills associated with 'paying attention', which is essential for success on the HTKS task. Alternatively, it could be that participation increased children's comprehension skills, meaning they were more easily able to understand the instructions. Altogether the current results represent novel findings, as currently there is limited research linking reminiscing conversations with children's self-regulation competencies, with even less research that has linked oral language interventions, including reminiscing, in ECEC contexts to children's self-regulation competencies.

4.5 Children's Developmental Outcomes at One Year Follow Up

Some studies indicate that preschool programmes targeting children's emergent academic skills and school attendance (Phillips, Gormley, & Anderson, 2016) and language development (Broberg, Wessels, Lamb, & Hwang, 1997) have lasting effects. Unfortunately, many studies also show that short-term developmental gains are susceptible to a "fading" effect with passing time (Atchison, Diffey, & Workman, 2016; Claessens & Garrett, 2014). While the PLD modules in this thesis targeted different developmental domains, it was nonetheless important to investigate whether benefits existed for children's developmental outcomes following the transition to school. Children who initially participated in the RRR module had significantly higher scores the ECK-self task at age six, suggesting a greater level of emotion understanding compared to those who did not complete the RRR module first. Furthermore, many children who completed the RRR module demonstrated qualitatively strong performance on the HTKS one year after school entry. This indicated a good understanding of the change in behavioural rules and well-developed self-regulatory performance on this task. It is noteworthy that many children completed the RRR module before they turned four years old. That these children then displayed what was possibly a differentially better performance (based on qualitative analysis of results) approximately two years later, is crucial evidence to support the idea that participation in the RRR module may have lasting effects. Taken together, there was promising evidence that reminiscing in ECEC contexts via shared book reading and other specific activities, fostered aspects of social-emotional and self-regulatory development through to six years of age for the children in the current study.

It is acknowledged that observable differences were not found in scores on the ECK-other task and CS task at the one year follow up period between those who completed the RRR module and those who did not. Clements et al. (2015) outline several explanations for

why the benefits of preschool initiatives can appear to fade out after the transition to school. First, it could be that 'learning begets learning'; that is, early gains lead to developmental cascades in which the child's competencies blossom. Re-testing on original measures may be inappropriate if they are not sensitive to the child's current developmental stage (Magnuson, Meyers, Ruhm, & Waldfogel, 2004). This principle may underlie the lack of observable differences on the CS task. An absence of evidence to suggest sustained developmental outcomes does not automatically imply that development has not occurred. Second, it is possible that individual differences in children's later competencies are representative of stable, underlying characteristics related to learning and development (e.g., general cognitive ability, motivation, or external environments such as home and school). This makes identifying the direct effects of targeted programmes aimed to improve children's developmental competencies more difficult (Bailey, Watts, Littlefield, & Geary, 2014; Cooper, Allen, Patall, & Dent, 2010). Lastly, it is important to acknowledge that the structure and scope of the current investigation were limited to just the participants in the current study. It is possible that children from the current study differed on measures of social-emotional and self-regulatory competence, compared to same-aged peers at primary school. Making comparisons between participants who all received PLD of some sort (without some sort of experimental control group who do not receive PLD), may obscure findings that would suggest differential development has occurred. Unfortunately, the inclusion of a control group was not possible for a range of practical and ethical reasons. Altogether, it is clear that there are several challenges and obstacles to overcome in order to clarify the long-term success of targeted preschool learning initiatives.

4.6 General Discussion

To summarise the main findings, most educators' use of emotion terms appeared largely unchanged across levels of module completion and across time, except for some

educators' at post-test two. A majority of educators used more cognitive terms following completion of the RRR module, but an increase in cognitive terms was also observed for several educators who completed the other two modules. Children's use of internal state language generally mirrored that of educators, although more children who showed increases in cognitive talk had participated in RRR (5/10 for the initial module) than the other two conditions (2/11). Further, at post-test two 4/5 children who had participated in RRR first used a higher proportion of emotion terms, while 3/5 used a higher proportion of cognitive terms. Similarly, at post-test two 2/3 children who had participated in the ENGAGE module first used a higher proportion of emotion terms, and 3/3 used a higher proportion of cognitive terms. Thus, it could be that increased duration of module participation, and/or a completing more modules, was associated with gains in children's reminiscing variables. There were promising findings on measures of children's developmental outcomes, which suggested some children who participated in the RRR module made statistically significant gains on measures of social-emotional and self-regulation competence. Furthermore, there was evidence to suggest that children who initially completed the RRR module had higher ECK-self task scores, and possibly the HTKS task scores, at the one-year follow-up period. Thus, the current study provides preliminary evidence that participation in that RRR module in home-based ECEC contexts may have exerted specific benefits for children's social-emotional and self-regulatory development.

Taken together, these findings indicate that the specific experiences associated with the RRR module (e.g., shared reading with directed prompts for discussions about experiences and emotions, and other oral-language interactions) may promote children's social-emotional and self-regulatory development. To some extent, these findings are in line with the notion that children's social-emotional understanding and self-regulatory capacity developed via increased language exposure and use, as has been suggested by other

researchers (Brown & Dunn, 1996; Dunn et al., 1991; Van Bergen & Salmon, 2010b). However, in the absence of direct analysis of the relationship between reminiscing language variables and children's developmental outcomes (and the variable nature of the current findings that were available), it would be inappropriate to assert that exposure to increased quality and/or quantity of language content during reminiscing directly facilitated children's social-emotional and self-regulatory development.

Unfortunately, it is possible that the selected variables of internal state talk that were used as an indicator of the quality of reminiscing conversations did not accurately reflect educators or children's increased exposure to reminiscing activities in the RRR module. Specifically, the reminiscing conversations and internal state talk variables used for analysis in the current study may have underestimated the usefulness and benefits for participation in the wider RRR module. Therefore, it is prudent to explore what alternative measures might have better assessed the quality of reminiscing conversations, and identified potential differences between participants as a function of module completion. As noted in the introduction, there is a small but growing literature base evaluating the associations between elaborative style reminiscing and children's social-emotional and self-regulatory outcomes (Laible & Thompson, 2000; Laible & Song, 2006; Reese & Cleveland 2006; Leyva & Nolivos, 2015). As well, a recent study into reminiscing in ECEC contexts used elaborative reminiscing as the measure of interest and reported promising findings for educators reminiscing abilities (Andrews et al., 2019). In this study, measures of internal state talk were selected due to theoretical interest. It is possible that a measure of elaborative style may have illuminated differences in educator-child reminiscing conversations between those who had participated in the RRR module, and those who had not.

It is noted that prior research has indicated that an increased number of PLD components available to ECEC educators, and increased length of educator participation in

PLD, were associated with the quality of education and care delivery (Markussen-Brown et al., 2017). As concluded by Diamond and Powell (2011), multi-component PLD that is dynamic and offers different learning opportunities, content, and reflection, has more chance of meeting the challenges educators face, compared to PLD delivered in a single format. This was a guiding principle in the design of the current wider project, as the three PLD modules contained unique content and experiences while sharing the conceptual framework of intentionally fostering development within specific areas of development. In this sense, the opportunity for educators in the current project to participate in multifaceted PLD avoided a one-size-fits-all model, and was able to cater to the individual differences in learning style and personal preferences that educators inevitably possessed (Markussen-Brown et al., 2017). These points support the idea that the quantity, intensity, and duration of PLD delivery may be more important for facilitating educators' learning and development, than the specific content of the PLD (Markussen-Brown et al., 2017). Therefore, although it was difficult to pinpoint the specific benefits for participation in each module of the current study, it was encouraging to find that participation in more than one module appeared associated with positive outcomes in educators and children's reminiscing variables, particularly at post-test two.

Previous research has concluded that identifying and understanding the processes in which reminiscing exerts effects on children's development is difficult (Das, 2019; Wu & Jobson, 2019). An in-depth understanding of the specific mechanisms linking reminiscing to children's developmental outcomes remains elusive, based on evidence from the current study. However, the obtained results can be considered in light of recommendations that reminiscing activities should be encouraged in ECEC settings (Andrews et al., 2019; Carr, 2011; Neale & Pino-Pasternak, 2017). The current findings extend the existing literature by providing evidence to suggest that educator-child reminiscing activities can be incorporated

in home-based ECEC contexts, and such experiences may foster growth in children's social-emotional and self-regulatory domains, with these gains being maintained through to six years of age. Reminiscing activities in ECEC contexts could include directed shared talk about past events (Andrews et al., 2019; Carr, 2011), and could also include shared reading in which complex language about socio-cognitive themes is facilitated (Reese, Gunn, Bateman, & Carr, 2019). Therefore, it is not only in parent-child contexts that shared talk may potentially facilitate children's development. Reminiscing activities represent a viable strategy for other professionals in ECEC contexts seeking cost-effective and user-friendly resources and techniques for promoting children's early social-emotional and self-regulatory development. And as a wealth of research suggests, early gains in these areas have numerous long term implications (Chetty et al., 2011; Moffitt et al., 2011; Shonkoff & Phillips, 2000).

4.7 Limitations and Future Directions

This thesis was informed by the principles of single-case research based on the strong recommendations supporting its utility when exploring novel ideas in the fields of education and psychology (Blampied et al., 2017; Kratochwill et al., 2013), and also the available participant pool appeared unsuitable for group design research. This allowed for the entire pool of participants from the wider project (a total of 26 educators and 59 children) to participate under a consistent and unified framework over time (Winn et al., 2004). Further, where possible statistical analyses were employed to verify the accuracy and validity of interpretations, in line with recommendations (Horner et al., 2005). Thus, the research framework was considered a strength of this thesis as it allowed for 'unadulterated' results to be presented and also allowed for both within and between-subject analyses to be conducted (Towne & Shavelson, 2002).

However, there were some limitations to this research. Some researchers suggest that studying the differential effects of two (or more) treatments can be difficult within a single-

case framework as it is not always possible to completely rule out carry-over effects from prior treatment completion (Thompson, 2006). This issue applies to the current study, as it was difficult to ascertain whether improvement at post-test two or post-test three was attributable to participation in the most recent module, the delayed effects from participation in a previous module, or other factors (e.g., increasing age). It is considered that one applied study is insufficient for strong conclusions to be reached regarding general treatment effects (Kratochwill et al., 2013). It is also noted that there were a number of practical barriers to implementing the level of experimental control that might be expected of single-case research. For example, given the labour intensive nature of data collection and coding, it was impractical to complete time-series data collection within each research phase, which would have afforded the opportunity to explore changes in trends as a function of different conditions. This research was also limited in its ability to compare across conditions, given the low participant numbers, which was compounded by numerous combinations of the total and order of modules that they completed. Future research is necessary to further evaluate the promising findings in the current study that suggested participation in RRR in home-based ECEC contexts was associated with specific benefits for children's social-emotional and self-regulatory development.

This thesis was conducted on a small sample size from a geographically limited population. One advantage of the small sample size and geographical location was that the structure of home-based ECEC in New Zealand was conducive to the model of delivery, as there were existing social structures to support both recruitment and implementation phases of the current study (e.g., Timperly et al., 2019). Based on previous suggestions about PLD delivery (Bromer & Korfmacher, 2017; Tonyan, et al., 2017), it is suggested that research investigating the implementation of PLD for home-based ECEs should identify existing

networks to assist delivery. However, future research is needed to explore whether RRR or other PLD introduced into home-based ECEC are beneficial in other areas and samples.

A potential limitation of the current study was the short time frame around the delivery of PLD modules and measurement of pre and post-module outcomes. As CS and HTKS results from post-test one through to pre-test two illustrated, many children obtained higher scores. Therefore, there may have been delayed effects for participation in the PLD modules. However, as a majority of post-test data collection was undertaken within a few weeks of module completion, it may have been too soon for children to demonstrate gains on measures of social-emotional and self-regulatory competence. As well, some educators and children completed subsequent modules in a relatively short time frame, which may have obscured specific gains from participation in the original module. It is equally possible that these gains were underpinned by an increase in age and associated general maturation and development, rather than a delayed effect. It is acknowledged that in the absence of a "true" control group (i.e., a group that does not participate in any targeted PLD), it is not possible to rule out the impact that increasing age had on measures of self-regulation and social-emotional competence. Unfortunately, the nature of the larger project that allowed educators to participate in a series of PLD modules over time meant it was not possible to alter the design of the module implementation or data collection. Future research seeking to more clearly delineate the benefits of RRR, and particularly reminiscing, in ECEC contexts might benefit from increasing the period from pre-test to the conclusion of module delivery, and to the post-test data collection phase(s).

There were a few limitations surrounding the implementation and delivery of the RRR module and post-test data collection that may have impacted the observed quality and quantity of reminiscing interactions between educators and children. First, during module delivery educators participating in the RRR module were encouraged to reminisce with

children at times that seemed natural; thus providing them autonomy and reducing task demands for their participation. However, during the pre and post-test assessments, educators were asked to reminisce on request with participating children. It might be that reminiscing upon request is less natural and free-flowing than reminiscing at a time selected by the educator, meaning that data on internal state talk did not accurately reflect educators and children's conversational skills. Additionally, educators may have differed in their adherence and approach to completing the prompts and activities designed to promote reminiscing during the implementation phase. While the available implementation data indicated that educators and children endorsed participating in project activities, these quantitative measures do not necessarily provide information on the quality of PLD implantation. Educators were provided with the general rationale for and guidance on reminiscing conversations in the professional development session; however, it is possible that more in-depth and specific guidance would have been beneficial.

It is also noted that the analysis of internal state talk during reminiscing was limited in scope. Internal state talk was operationally defined as the total amount of cognitive and emotional content utterances, which summated talk about the child and others, positive and negatively-valenced language, and attributions and explanations. This prevented more in-depth analysis of how the more nuanced aspects of internal state talk may change over time, and also limited speculation as to how they might influence children's social-emotional and self-regulatory outcomes. For example, explanatory language when discussing negative emotion-eliciting events has been linked to children's later emotional understanding and language abilities (Bird & Reese, 2006; Fivush & Wang, 2005; Sales & Fivush, 2005). Additionally, research has also sought to delineate the contribution of other content-related elements such as affect (evaluative comments about people or objects) to children's later developmental outcomes (Farrant & Reese, 2000). It is possible that more specific elements

of educators' and children's reminiscing that were not captured in this thesis may promote children's learning and development.

Another limitation was the number, and scope, of measures used in the current study. As described in the introduction, the task of identifying and measuring the key skills and processes involved in social-emotional and/or self-regulation competence is highly complex (Barblett & Maloney, 2010; Denham, 2006). Although the current study sought to use a variety of measures to overcome this issue, it is important to appreciate that there are numerous aspects of social-emotional and self-regulatory functioning that were not captured in this thesis. Therefore, it may be unfair to conclude that some children did not make developmental gains, simply because they did not demonstrate improvement on the selected measures.

In general, future research is needed to acquire a more in-depth understanding of the similarities and differences between educator-child reminiscing and parent-child reminiscing (Andrews et al., 2019). In keeping with the methods of the current study and recommendations from Neale and Pino-Pasternak (2017), future researchers are encouraged to analyse the micro-level units of conversation. A more careful analysis of internal state talk variables (e.g., emotions expressed about the self or others, attributions and explanations, and positive and negative valence of language) may provide novel insights into implicit aspects of language use and childhood development. Additionally, making reminiscing conversations more specific by requesting educators to discuss positive and/or negative events may also yield important information about how educators discuss emotions and navigate resolution-focused talk. As noted above, it might be worthwhile to investigate if other indicators of educators' reminiscing quality (e.g., elaborative style) are shown to change over time and as a function of participation in PLD that incorporates reminiscing activities. Overall, there are a

number of areas in the field of reminiscing in home-based ECEC that warrant further investigation.

There is a significant need for future research to continue to explore how best to support home-based ECEC educators in their delivery of education and care. The growing number of children who attend home-based ECEC and increasing average time that children spend there, in a climate of higher expectations for education providers to foster development in a range of areas, necessitates that additional resources are dedicated to assisting educators with these complex and demanding tasks. This could involve the continued implementation and investigation of reminiscing activities, or other types of PLD, in home-based ECEC. As previously noted, the structural environment of home-based ECEC provides a wealth of opportunities for enriching interactions (Ahnert, Pinquart, & Lamb, 2006; Yelverton & Mashburn, 2018). Future research could also seek to explore *how* educators navigate the delivery of PLD in ECEC contexts, and identify potential barriers to successful implementation. One topic not yet discussed was the willingness and enthusiasm several educators expressed around receiving and completing PLD designed to assist with their everyday care and education of children. This was evident in the high number of educators indicating their interest to participate in further modules. Thus, support and resources devoted to assisting home-based educators is likely to be received with open arms.

In conclusion, this thesis sought to investigate whether participation in PLD modules, and specifically RRR, was associated with the increased use of mental state and emotion language during reminiscing between home-based ECEC educators and participating children, and whether this impacted children's developing social-emotional and self-regulatory competencies up to one year after starting primary school. Results showed that across the three modules, educators' use of emotion terms largely remained the same from pre-test to post-test one, while some educators used a higher proportion of emotion terms at

post-test two. Additionally, there was some evidence that educators used more cognitive terms at later time points. Some children used a relatively higher proportion of cognitive terms after participation in RRR, with concomitant or later relative change in emotion talk. Moreover, children who completed the RRR module demonstrated differential gains on some measures of social-emotional development and self-regulation, with some evidence of maintained improvement through to one year after starting primary school. This suggested that participation in the RRR module did exert some specific benefits for children's social-emotional and self-regulatory development. Unfortunately, the available evidence made it difficult to pinpoint a mechanism that might connect the findings. All in all, the current thesis extends the relatively scarce literature base on reminiscing in ECEC settings and provides a number of questions that could be explored in future research.

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Appendix A

Ethics Committee Approval Letter

16/016

Academic Services
Manager, Academic Committees, Mr Gary Witte

30 January 2018

Professor E Reese
Department of Psychology
Division of Sciences
Union Place East/Leith Walk

Dear Professor Reese,

I am again writing to you concerning your proposal entitled "**Home is Where the Heart Is: Teaching and Learning in Home-Based Care**", Ethics Committee reference number **16/016**.

Thank you to Dr Libby Schaughency for her email of 26th January 2018 notifying the Committee that the research team will soon begin to invite participation of new children into the above study and that you will incorporate consent for follow up into the informed consent process from the outset.

The Committee notes the additional changes to the Information Sheet and Consent Form for Parents.

The Committee accepts and approves the amendment and thanks you for providing the revised documentation.

Your proposal continues to be fully approved by the Human Ethics Committee. If the nature, consent, location, procedures or personnel of your approved application change, please advise me in writing. I hope all goes well for you with your upcoming research.

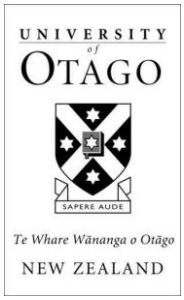
Yours sincerely,

Mr Gary Witte
Manager, Academic Committees
Tel: 479 8256
Email: gary.witte@otago.ac.nz

c.c. Professor M W Colombo Department of Psychology

Appendix B

Consent and Information Sheets for Educators



Home is Where the Heart Is: Supporting Teaching and Learning in Home-based Care

INFORMATION SHEET FOR PARTICIPANTS (EARLY CHILDHOOD EDUCATORS)

Thank you for your interest and consideration of possible participation in our project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?

The NZ government aims to achieve 98% participation in early childhood education by 2016. Home-based early childhood services are growing in popularity in NZ. The proposed research is aimed at evaluating a research-based professional learning and development (PLD) initiative for home-based educators. The PLD modules integrate effective techniques for developing children's oral language, literacy, self-regulation, and socioemotional competence, all of which are vital for academic achievement. The programme is expected to contribute to the carers' professional learning and development, be feasible in practice, and beneficial for children's skill development.
This project is funded by a Westpac Research Award. The research is being conducted as part of the requirements for the PhD degree at the University of Otago.

What Type of Participants are Being Sought?

Participants will be home-based educators, preschool children in their care aged between 3-1/2 and 5 years, and their parents. Recruitment will take place in concert with the Dunedin Community Childcare Association.

What will Participants be asked to Do?

Should you agree to take part in this project, you will be asked to take part in a two-hour professional development session at the DCCA to learn new skills and to receive new resources. The new skills are activities and games for you to engage in with the preschoolers in your care several times a week, for about 15 minutes each time, for one school term. To help us evaluate our professional development programme, you will be asked to complete several questionnaires and a brief videotaped observation, before and after participation in

this professional development. To help us evaluate benefits for early childhood practice, these include questionnaires about your educational goals,
values, and practices involving the children in your care.

Researchers will also videotape you reading books and having conversations in the care setting before and after participation. To help us evaluate benefits for fostering children's development, questionnaires will also ask you to rate developing skills of participating children whose parents/guardians have given permission for you to provide this information. These evaluation activities are expected to take a total of 1.5 hours. In addition to the initial professional development session, you would be asked to meet with researchers twice more, about midway through the implementation term, for a brief discussion of your experiences and impressions to date, and again following participation, to discuss your reflections on participation and how you might continue to use project activities in your practice in the future. These sessions are expected to take a total of 1 hour. To acknowledge your contribution to the project, a small token of appreciation will be offered.

Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind.

What Data or Information will be Collected and What Use will be Made of it?
In addition to the information described above, we will also collect general demographics (age, ethnicity, gender etc.). The purpose for attaining demographic information is so that we may describe our study sample and further tailor the program to the needs of home-based educators.
All information that we collect will be used only by university researchers working on this study. The overall results of the project may be published and will be available in the University library, but individual participants' information will remain anonymous and confidential as described below. You are most welcome to request a copy of the results of the project should you wish.

The data collected will be securely stored in such a way that only those university researchers working in the research team will be able to gain access to it. At the end of the project any personal information will be destroyed immediately, except that, as required by the University's research policy, any raw data on which the results of the project depend will be retained in secure storage for five years after publication of study findings, after which it will be destroyed.

Can Participants Change their Mind and Withdraw from the Project?

Reminder: You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What if Participants have any Questions?
If you have any questions about our project, either now or in the future, please feel free to contact any of the following:-

Dr Elizabeth Schaughency
Department of Psychology
University Telephone
479-5864

or

Professor Elaine Reese
Department of Psychology
University Telephone
479-8441

Mrs Jane Carroll
Department of Psychology
University Telephone
479-8352

Ms Amanda Clifford
Department of Psychology
University Telephone
479-5949

This study has been approved by the University of Otago Human Ethics Committee (Reference Number: *16/016)*. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph +643 479 8256 or email gary.witte@otago.ac.nz). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

Home is Where the Heart Is: Supporting Teaching and Learning in Home-based Care

CONSENT FORM FOR
PARTICIPANTS (EARLY CHILDHOOD EDUCATORS)

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.
I know that:-

1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project at any time without any disadvantage;

3. I agree to be videotaped reading books and talking with the children in my care;

4. Personal identifying information will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years.

5. A small token of appreciation will be offered for my participation.

6. The results of the project may be published and available in the University of Otago Library (Dunedin, New Zealand) but information will be stored and presented in ways that will protect participant's confidentiality.

I agree to take part in this project.

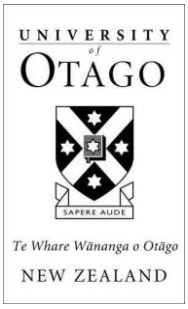
....
(Signature of participant) (Date)

This study has been approved by the University of Otago Human Ethics Committee (Reference Number: *16/016)*. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee

Administrator (ph +643 479 8256 or email gary.witte@otago.ac.nz). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

Appendix C

Consent and Information Sheets for Parents



Home is Where the Heart Is: Supporting Teaching and Learning in Home-based Care

INFORMATION SHEET FOR PARTICIPANTS (PARENTS)

Thank you for your interest and consideration of possible participation in our project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?

The NZ government aims to achieve 98% participation in early childhood education by 2016. Home-based early childhood services are growing in popularity in NZ. The proposed research is aimed at evaluating a research-based professional learning and development (PLD) initiative for home-based educators. The PLD modules integrate effective techniques for developing children's oral language, literacy, self-regulation, and socioemotional competence, all of which are vital for academic achievement. The programme is expected to contribute to the carers' professional learning and development, be feasible in practice, and beneficial for children's skill development.
This project is funded by a Westpac Research Award. The research is being conducted as part of the requirements for the PhD degree at the University of Otago.

What Type of Participants are Being Sought?

Participants will be home-based educators, preschool children in their care aged between 3-1/2 and 5 years, and their parents. Recruitment will take place in concert with the Dunedin Community Childcare Association.

What will Participants be asked to Do?

We have invited home-based educators to take part in a professional development programme offered through the DCCA by university researchers to learn new skills for fostering children's development and to receive new resources to help them use these skills in their settings. The new skills include activities and games for use with participating pre-schoolers in their care. To evaluate the useful of these skills for educators' and children, educators will

be asked to incorporate these activities several times a week, for about 15 minutes each time across one school term.

Should you agree to allow your child to take part in this project, your child's educator will be asked to complete several questionnaires before and after participation, and to participate in a videotaped observation of their practices. To help us evaluate benefits of participation for fostering children's development, these questionnaires include questions about your child's use of developing skills in the home-based care setting.

Researchers will assess your child's language, emergent literacy, self-regulation, and socioemotional skills before and after the professional development sessions. You will be asked to complete several questionnaires about your child's development before and after the professional development sessions. Although the primary purpose of this study is to evaluate benefits of our professional development programme for home-based educators, we also recognise the important contributions of parents to their children's development. Therefore, to help us evaluate relative benefits of our initiative to children's development, it's also important to understand what parents are already providing at home. We will ask you to complete brief questionnaires of your own practices that support your child's development at the start of the study. The questionnaires are estimated to take a total of 1 hour (30 minutes before and 30 minutes after the study). To acknowledge your contribution to the project, a small token of appreciation will be offered to you and to your child.

Please be aware that you and your child may decide not to take part in the project without any disadvantage to yourself of any kind.

What Data or Information will be Collected and What Use will be Made of it?

In addition to the information described above, we will also collect general demographics (age, ethnicity, gender etc.). The purpose for attaining demographic information is so that we may describe our study sample and further tailor the program to the needs of home-based educators.

All information that we collect will be used only by university researchers working on this study. The overall results of the project may be published and will be available in the University library, but individual participants' information will remain anonymous and confidential as described below. You are most welcome to request a copy of the results of the project should you wish.

The data collected will be securely stored in such a way that only university researchers working in the research team will be able to gain access to it. At the end of the project any personal information will be destroyed immediately, except that, as required by the University's research policy, any raw data on which the results of the project depend will be retained in secure storage for five years after publication of study findings, after which it will be destroyed.

Can Participants Change their Mind and Withdraw from the Project?

Reminder: You and your child may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What if Participants have any Questions?

If you have any questions about our project, either now or in the future, please feel free to contact any of the following:-

Dr Elizabeth Schaughency
Department of Psychology
University Telephone
479-5864

or

Professor Elaine Reese
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Home is Where the Heart Is: Supporting Teaching and Learning in Home-based Care

CONSENT FORM FOR
PARTICIPANTS (PARENTS)

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.
I know that:-

1. My participation (and my child's) in the project is entirely voluntary;

2. My child and I are free to withdraw from the project at any time without any disadvantage;

3. My child will be audiotaped telling stories to a researcher. Transcripts of the audiotapes will contain no personal identifying information.

4. My child will be videotaped while interacting with their educator.

5. Personal identifying information will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years.

6. A small token of appreciation will be offered for my participation.

7. The results of the project may be published and available in the University of Otago Library (Dunedin, New Zealand) but information will be stored and presented in ways that will protect participant's confidentiality.

I agree to take part in this project.

....
(Signature of participant) (Date)

....
(Child's name) (Date of birth)

This study has been approved by the University of Otago Human Ethics Committee (Reference Number: *16/016)*. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph +643 479 8256 or email gary.witte@otago.ac.nz). Any issues you raise will be treated in confidence and investigated and you will be informed of th

Appendix D

Parent Consent Form (One Year)

Dr Elizabeth Schaughency
Department of Psychology
03 479 5864

Professor Elaine Reese
Department of Psychology
03 479 8841

Dr Dione Healey
Department of Psychology
03 479 7620

Dr Jane Carroll
Department of Psychology
03 479 5267

Home is where the heart is: Supporting Teaching and Learning in Home-Based Early Childhood Education

Supporting Teaching and Learning
in Home-Based Early Childhood Education Consent Form
For Parents/Guardians

- I understand and agree for my child to continue participating in the study.
- I give permission to the researchers to contact my child's school, and agree to have the researchers do tasks assessing my child's developing skills at their school.
- I give permission for my child's teacher to provide information to the researchers about my child's school progress.

I _____ agree for my child _____ to take
(Parent/Guardian's full name) *(Child's full name)*
part in the primary school follow-up assessments of the Supporting Teaching and Learning in Home-Based Early Childhood Education Project.

I agree to have the researchers contact my child's school to arrange for this to occur
YES / NO

- Name of child's primary school: _____
- Full name of (main) teacher: _____

Signature: _____ Date: ___/___/___

THANK YOU FOR YOUR PARTICIPATION
DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF OTAGO

If you have any questions or concerns please feel free to contact one of our research staff named above or PhD students:

Sarah Rouse
(03) 479-5949

Amanda Clifford
(03) 479- 5949

This study has been approved by the University of Otago Human Ethics Committee (Reference Number: 16/016). If you have any concerns about the ethical conduct of the research you may contact the Human Ethics Committee Administrator (ph 03 479 8256).

E tipu e rea mo ngā rā o tō ao | Grow up, o tender shoot, and thrive in the days destined for you

Appendix E

Project Information for Schools

Home is where the heart is

Supporting Teaching and Learning in Home-based Early Childhood Education

Hello, Kia Ora, Talofa, Mālō e lelei!

Dear principal and members of the school community

One or more of your students participated with their early childhood educator in a collaborative project of University of Otago researchers and Pioneers Home Visiting Teachers. The aim of our project is to develop user-friendly professional development resources for home-based educators who provide early childhood education to 3 ½ to 4 ½ -year olds.

Beginning this year, we will be starting final evaluations with children who participated in our project and have been at school for one year. The purpose of these final evaluations is to help us understand the benefits of participation for children's success in beginning schooling. This final evaluation includes parent and, with parent/guardian consent, teacher questionnaires to gain their perceptions about children's progress at school as well as individual assessments with children conducted by research students. If agreeable to parents and school personnel, assessments with children may be completed at school. If assessments are conducted at school, research students will make arrangements for a suitable time to complete assessments with appropriate school personnel. Teachers will be provided with a small thank you gift (book voucher) to acknowledge their assistance with the evaluation of our project.

Team members who will be participating in final evaluation activities include research students Tom Ford and Laura Gilkison. Tom or Laura will be making contact to make arrangements for school follow up for participating children at your school.

Attached is a copy of the background to the study and where we are now. Thank you for considering assisting us with our evaluation of benefits of this work for children's learning in beginning schooling. If you have any questions or would like further information, please don't hesitate to contact us.

Introducing the Tender Shoots Team

Pioneers Home Director, Visiting Teachers, and Educator, Angel Gosling, along with university researchers, Libby, Elaine, Dione, and Jane, and research students, Amanda and Sarah, at the 2016 Early Childhood Research Hui.
http://www.tlri.org.nz/tlri-research/research-progress/ece-sector/supporting-teaching-and-learning-home-based-early-0

Above Right
Tom Ford and Laura Gilkison

Ngā mihi,
The Tender Shoots Team

This study has been approved by the University of Otago Human Ethics Committee (Reference Number: *16/016*). If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph +643 479 8256 or email gary.witte@otago.ac.nz). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome

Dr Elizabeth Schaughency
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Professor Elaine Reese
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03 479 8841
ereese@psy.otago.ac.nz

Dr Dione Healey
Department of Psychology
03 479 7620
dionehealey@psy.otago.ac.nz

Dr Jane Carroll
Department of Psychology
03 479 5267
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UNIVERSITY OF OTAGO

The Pioneers HOME

TEACHING & LEARNING RESEARCH INITIATIVE

Appendix F

Reminiscing Coding Scheme

Parent Child Conversation Coding Scheme

1st Step: Code for elaboration vs repetition

NOTE1: ONLY CODE FROM THE 1st ON TOPIC UTTERANCE TO THE LAST ON TOPIC UTTERANCE BY THE PARENT, FOLLOWED BY THE CHILDS LAST RESPONSE

NOTE2: An utterance is a verb or implied verb. Only 1 credit for multiple subjects e.g. Bert and Ernie and Cookie Monster came

Parental Utterances

NB: Every parental utterance receives a code from the following categories

- **Memory Questions (Open-Ended)** – Open ended questions ask for more than a yes or no response from the child. Often they are wh- questions. Classified as either:
    - **Elaborations [*MQ-EL*]:** asking the child an open-ended question that contains new information about the event that neither mother nor child has previously mentioned (e.g. What did we see at the zoo? How did we get there?). includes utterances such as "just tell mummy what you did at school today" because it includes a wh-, also includes "tell me about it"
        - Introducing the event by asking "what about the..." is a MQ-EL
    - **Repetitions [*MQ-REP*]:** open ended questions that repeat the exact content or gist of information provided by parent in a previous statement or question e.g. mother asks "who was there?" and in next turn asks "do you remember who was there?"

If parent asks "who else?" multiple times and each time they are requesting the child names someone else don't code each of these as MQ-EL unless it's about a different aspect of the event (e.g. ask who else was at the party and then who else was at home afterwards). Asking who else was at the party multiple times would get one code of MQ-El and the rest would be MQ-REP.

- **Yes-No Questions** – these questions require only a "yes" or "no" response from the child. Classified as either:
    - **Elaborations [*YN-EL*]:** asking child to confirm or deny a new piece of information. Includes "can you tell me...." Includes "do you remember anything you were wearing?" because they do not include a wh-
    - **Repetitions [*YN-REP*]:** asks the child to confirm or deny the same information as given in a previous comment

NB: Forced choice questions e.g. "do you like bananas or do you like apples?" are included as yes-no questions. "Are you sure?" is a YN question

- **Contextual Statements:** Coded as either:

- **Elaborations [*S-EL*]:** statement that provides the child with new information about the event but does not call for a response
- **Repetitions [*S-REP*]:** statement that repeats the exact content or gist of the previous statement

NB: Tag questions e.g. 'there were five were there?" are included as contextual statements.

NB: if the parent says "we went to Fiji remember? this is a tag question because they are telling the child and asking for them to confirm. If they say "remember we went to Fiji?" the child can respond yes or no and it is therefore a YN question

- **Remember Prompts [*RP*]:** Empty prompts e.g. "do you remember?" or "Yeah?" or "Because..?" They function to prompt the child to remember but do not contain any content. Only code as remember prompts if the utterance cannot be classified in any other category
  - NB: Only code as a remember prompt if there's nothing else in the utterance e.g. "can you remember?" would be a RP but "can you remember it?" would be YN because of the it
- **Mother place holder [*MPL*]:** Examples include "um" and "mmm"

- **Fill-in-blanks :** e.g. "Uncle....?", "the first time we did what...?
  - **Elaborations [FI-EL]** : asking the child to fill in a piece of new information
  - **Repetitions [FI-Rep]:** asking the child to fill in a piece of information the mother has previously stated e.g. "Uncle [name] was there. Uncle....?"

- **Meta Comments [M-Meta]:** Includes metamemory talk about the process of remembering and print talk

NB: only use when an utterance cannot be coded in one of the memory categories

Parent Examples

— "think really hard"
— "is that your imagination?"
— "always forget about Uncle (name)"
— "have a think"
— "wow you remember that"
— Parent says " I remember that" or "I can't remember that"
— "starts with K"
— "I didn't notice that"
— "you're a tricker"
— "you're telling lies"
— "I believe you"

- **Confirmations [*EVAL-C*]:** Of child's utterances, including repletion of the child's previous statement. Also includes repeating and turning child's utterance into a question, unless they add any new information
  - Should still be coded as confirmation even if the parent is actually questioning the child because they don't think it did happen

  - You can have up to 2 confirmations per conversational turn but they have to be different types
    - 1 has to be an evaluation e.g. "well done", "good girl", "yes", "wow"
    - 1 has to be a repetition
    - Therefore the parent would get 2 Eval-C's for saying "your toothbrush yeah" if the child had said toothbrush, but only one for saying "well done. Good girl"
    - Includes mother answering herself e.g "were you on mums shoulders? No."
    - Includes "didn't it?", "there wasn't?"
    - "yes you did didn't you?" = 2x Eval-C as the yes is an evaluation and the you did is a partial repetition if the child says "I did something"
    - "yes that's right" – 1x Eval-C
    - "that's right you did" = 2x Eval-C

- **Negations [*EVAl-N*]:** Of child's utterance
  - "no it wasn't (name)" = 2x Eval-C
  - Have to look at the child's answer when deciding if it's a confirmation or negation e.g. if the child says "no" and then the parent says "yes" it is a negation
- If the parent asks a question and then says "yes" or "no" immediately after we have to look at the function of that that. E.g. if they know that the answer is "no" then it's an Eval-C. But if they ask "did we go to the beach? No. We stayed at home" that would be an Eval-N

- **Unclassifiable [*M-UN*]:** Any utterance that cannot otherwise be classified or is unintelligible
  - Includes clarification questions e.g. "pardon?", "hey?"
    - NB: Clarification only refers to acoustical clarification e.g. "Did you say Cat?" not a clarification of meaning e.g. "did you mean the time we went to the other marae?" which would be a YN question

- **Off Topic Talk [*M-OFF*]:** Includes behavioural prompts, talk about the tape recorder, completely unrelated topics. Note responses by the child to the mother's off topic talk are also off topic

Notes

- If parent doesn't finish the question it is ignored.
- If parent breaks a question over 2 conversational turns it is only counted as one question.

Children's Utterances

NB: each utterance receives a code. Coded as either:

- ✓ **Memory Elaborations [*ME*]:** On topic utterances that provide new information
- ✓ **Memory Question [*MQ*]:** The child asks a question that requests information e.g. "When was that?". The question has to be a request for new information or provide new information in the question. If they are just repeating what the mother said in a question then it is MR. Also repeating their question is MR
- ✓ **Memory Repetitions [*MR*]:** On topic utterances that do not provide any new information about the event. Includes repeating their own or mother's previous comments
- ✓ **Child place holder [*CPL*]:** Examples include "I don't know" , "oh", "mum?" and "Um". Only coded as CPL if there's nothing else in the conversational turn.
    - **NB:** If the child says "no I don't know" you can't code as both C-Eval-N and CPL. Therefore give the whole utterance a CPL because they're not actually answering "No"
    - If the parent says "do you remember?" and the child says "no" code as CPL. If the parent asks "do you remember?" and the child says "yes" it is a C-Eval-C because they are confirming that they do remember
    - If the child said "Um I went to town" the "um" wouldn't be coded as a CPL – this is why we don't code as CPL if there's anything else in the conversational turn. If the child said "I don't know. Can we listen to the recorder now?" I would still code as CPL and C-OFF because they're still saying I don't know in response to the mothers question.
- ✓ **Meta Comments [C-Meta]**

Child Examples

- " I remember that" (NB: If they say what they remember it would be ME)
- "I don't remember because it was a long time ago"
- BUT NOT "I don't remember" which would be a PL because they are taking a conversational turn but not providing information
- "I'm telling the truth"

- ✓ **Confirmations and Negations [*C-Eval-C and C-Eval-N*]: "Yes/ Mmm hmm" and "No"**
- ✓ **Off Topic [*C-OFF*]:** Includes behaviours, talk about the tape recorder. Note mother's responses to the child's off topic talk are also off topic
- ✓ **Unintelligible/ Unclassifiable [*C-UN*]:** Unintelligible utterances or utterances where you don't know if they're on topic or off topic or don't have enough information that you could chose between ME or MR. If the last utterance in the conversation is unintelligible still code as C-UN not C-OFF because we don't know what the child was saying.

General Points on Child Coding

- ➢ If child sings it's only coded once as ME. The remainder of the song doesn't get coded

- If the parent asks the child if there is anything else to discuss and child says no – coded as PL. If parent asks if child has had enough and child says yes code as C-OFF. Child saying they don't want to talk about it is also coded as C-OFF. Child saying "that's all" at the end is coded as PL
- If parent isn't sure if something child says happened did happen then it's coded as ME still to give them benefit of the doubt

Step two (if required)

Associations within the target event (both parent and child)

NB: Association codes are scored in addition to the memory code that they receive e.g. "What will you do next time?" Would receive a MQ-EL however, it would also receive a M-AS-FU because it talks about the future.

Got to look at what the target event is – e.g. if the target event is how the child gets to go back to their friends place then things like "you've got to be good at dinner time" is not future talk it's part of the target event.

- **Associations to past [C & M AS-REL]** – a past event that was related to the event in question
  - **NB**: Have to look at how the parent introduces the event e.g. if they say "let's talk about the summer holidays" then anything they did in the summer holidays can be counted as on-topic. However, if they said "who came to Christmas dinner?" and then proceed to talk about the Christmas play the play would be an associated event
  - E.g. "Aunty is having a baby. You were once a baby in mummy's tummy" is As-Rel
  - E.g. "you were named after granddad. Do you remember going to visit granddads grave?" the stuff about the grave would be As-REl
- **Associations to future [C & M AS-FU]** – comments about a future occurrence of the particular event in question e.g. "Do you want to go back to...? or "next time I want a chocolate birthday cake" "what's happened to that stick now", "we're gonna do that every Christmas from now on" "now I'm this big"
  - **NB**: If they talk about the same event happening twice on the same day (e.g. "did you eat the felts again? Yes you did later that day") it would still be part of the same event not AS-FU. But if they say "are you going to misbehave again?" it would be AS-FU
- **Associations to book reading [C & M AS-BR]** - comments that relate to the books they have read as part of the study e.g. "you read that book at school, which is the same book we got in our treasure box"
- **Associations to other book reading [C & M AS-BRO]** - comments that relate to the books that are not part of the study
- **Associations to learning tools [C & M AS-LT]** - comments that relate to things that might help the child learn e.g. "we learnt that on you-tube"
- **Fantasy Talk [C & M AS-FA]** – concerned the event in question but was couched in fantasy rather than factual terms. Be conservative as these are often off topic
- **Facts about the world [C & M AS-GEN]** – facts about the world that arose in conjunction with the event in question. For example, if they are talking about their trip to the park - saying "the

park had lots of green trees" is a S-El but saying "trees lose their leaves in the autumn" is a AS-GEN

NOTE: Responses to associated talk are also considered associated talk. e.g.
M: "We'll have to go there again next year" = M-AS-FU
C: "Yes" = C-AS-FU

Further code the associated talk as one of the elaboration codes above

e.g. M: "What are we going to do next time we're there?" = M-AS-Fu MQ-EL

3rd Step: Code for content of the elaborations

1. Code for whether **ONLY THE ELABORATIONS** (MQ-EL, YN-EL, S-EL, FI-EL, RP, M-Meta, ME, MQ) and any associated talk that contains an elaboration are
    a. Emotion State
    b. Affect State
    c. Cognitive State
    d. Other Descriptive Terms

Notes

- These are not mutually exclusive. C: "I think I liked it" would be subcoded as a cognition ("think") and as a emotion "liked"
- The coding of these can depend on the form of the word used e.g. "scared" is an emotion but "scary" is an affect state as it's evaluating the event. Also "good" can be a feeling "I felt good" or an affect state "it was good", "I had a good time"
- **Repetitions** of emotion words that are not for emphasis, do not count. (i.e. "I was really angry, really angry," does **not** count. "I was angry and I mean really angry," does count.)
- **Context:** coding can vary depending on context e.g. "Care" can be an emotion "I really care about him" because it implies love, or it cannot be coded e.g. "I take care of him" because it implies caring for physical needs
- Do not code "fillers" that contain language that could be cognition words in other contexts e.g. "I like was like talking on the phone" - doesn't mean they like something it's a filler

Emotion State [EMO]

A feeling, emotional behaviour or desire

1. Code as an emotion – see below for examples

Emotion Words

Annoyed	Unsettling	Appreciate	Afraid
Apprehensive	Bad	Hate	Ashamed
Awful	Bothered/ disturbed	Hesitant	Embarrassed
Concern/ Concerned	Crabby	Insecure	Fear
Like	Gross	Doubtful	Frightened
Care	Freaked out	Messed up	Frustrated
Rage	Stress/ Stressed	Temper	Furious
Uncomfortable	Guilty	Humiliated	Jealous/ Envy
Mad	Miserable	Nervous	Panic/ Panicky
Sad	Scared	Shocked	Sorry
Terrified	Uncertain	Unnerving	Upset
Worry/ Worried	Better	Calm/ Calm down	Comforted/ Comfortable

Love	Enjoyed	Enjoy	Good
Relieved	Proud	Wasn't sad	Excited
Glad	Happy		

N.B Do not code physical things e.g. I felt sick

Emotional Behaviours

- cried/ crying/ didn't cry
- freaking out
- screamed (could be positive or negative depending on context)
- yelled
- hug
- laughed/ laugh/ laughing
- smiling
- trust
- argue
- kicking
- having a fight
- celebrate

Desires: Examples include want, prefer, rather

2. Code as positive **[POS]**, negative **[NEG]**, or neutral **[NEU]**– most are either positive or negative. "How did you feel?" is an example of a neutral term
    a. Negations are coded as the opposite of what the emotion word would usually be e.g. "sad" = negative so "wasn't sad" = positive but "wasn't too sad" = negative
    b. Sometimes depends on context

3. Code who the emotion was about – Child **[C]** or Other **[O]**

    e.g. C: "I liked it" = EmoPosC – a positive emotion that the child had
    C: "you liked it" = EmoPosO

    M: "you liked it didn't you?" = EmoPosC – the mother is saying that the child had that emotion.

    Could get a code for both child and other e.g. M: "you and I loved it" = EmoPosC and EmoPosO

4. Code as Attribution **[ATT]** or Explanation **[Expl]**
    a. An attribution is anything that doesn't explain why e.g. "I liked it when Santa came"
    b. An explanation provides a why "I liked it because Santa came"

c. An explanation could also be a why question e.g. M: "Why did you like it? = EmoPosC EXPL or a response to a why question e.g. M: "Why did you like it?" C: "Because Santa was there" = EmoPosC EXPL
d. The explanation has to be explicit – doesn't have to contain because but could contain a similar word "as, so, made me"
e. It has to be obvious that it's "why" that's being explained, not *what* they were feeling or *when* they were feeling that way
    i. e.g. "I was excited to try on the new dresses" is an explanation of *what* they were excited about not *why*
    ii. e.g. "I was sad when I fell over" = NOT EXPL because it's *when* you were sad not *why* but "I was sad because I fell over" = EXPL
    iii. e.g. "I was sad at Granddad's funeral" = NOT EXPL because it's *where* you were sad not *why*
    iv. "The people were jumping on the stand so I got nervous that the stand would fall down" = EXPL but "People were jumping on the stand. I got nervous that the stand would fall down" = NOT EXPL
    v. "the pizza was all cheesy so I liked it" but not "the pizza was cheesy. I liked that"
    vi. "why did you like it?" = EXPL but not "what did you like?" or "did you like it?"
    vii. "Why did you feel that way?" but not "how did you feel?"

f. Has to be an explanation of the emotion not of something else
    i. E.g. C" I hate the neighbours dog"
    M: I know but the neighbours got the dog because they want to stop burglars" = this is an explanation of why they got the dog not why the child is scared of the dog
g. A single emotion/evaluation can have multiple explanations e.g. I was sad because my pony got put down and because I had to get a new pony = 2x Expl

Affect State (AKA Evaluation) [AFF]

An evaluation of something

1. Code as an affect state – see below for examples

Affect State Examples (Evaluating something)

Good	Favourite	Best	Shy
Important	Fun	That's right	Well done
Special	Hard	Stupid	Naughty
Cool	Yummy	Pretty	Bad
Not that good	Stressful	Scary	

N.B. C: "I had fun" = AffPosC (about the fun the child is having)

2. Code as positive **[POS]**, negative **[NEG]**, or neutral **[NEU]**– most are either positive or negative. "How was that?" is an example of a neutral affect state
    a. Negations are coded as the opposite of what the emotion word would usually be e.g. "Good" = positive but "not good" = negative
    b. Sometimes depends on context e.g. "Funny" (hilarious) = positive but "funny" (weird) = negative

3. Code who the affect was about – Child **[C]** or Other **[O]** e.g
    a. "It was a good day" = AFFPosO
    b. C: "I was being good" = AFFPosC because it's evaluating the child

4. Code as Attribution **[ATT]** vs Explanation **[EXPL]**

Cognition [COG]

Terms around using the brain

1. Code as an cognition – see below for examples

Amazed	Anticipated	Bet	Believe
Boredom	Confuse	Certain	Concentrate
Convince	Coping	Discover	Determine
Dream	Doubt	Decided	Experience
Expect	Forget	Figure	To find out
Faked	Guess	Ignore	Interested idea/ clue
Imagination	Intend	Imagine	Impressed
Know	Learn	Lie	Make sense
Mean	Memory	Missed	Noticed
Obsessed with	Occurred (e.g. it occurred to me)	Perceive	Pretend
Pay attention	Patient	Puzzled	Remember
Reflect	Realise	Respect	Reason Recall
See (as in learn)	Suppose	Sure/ wasn't sure	Sense
Trust	Think	Thought	Understand
Wonder	Choose (Choice)	Checked	

1. Code who the cognition was about Child **[C]** or Other **[O]** e.g
    a. C: "I thought it was a piece of cheese" = CogC
    b. C: "You thought it was a mouse" = CogO

Other Descriptive Terms [DESC]

Code anything that doesn't contain any of the above in this category – doesn't have to be true e.g. C: "Cats were there" – we don't know if there were cats there or not but it still gets coded as this

3rd Step: Code for sound talk/defining vocab or grammar

Go through the transcript again and code the frequency of propositions that contain

1. Sound talk
    a. Must explicitly be sound talk e.g. both these start with a /b/, these words rhyme as opposed to "buzz...." as this is just a fill-in-the-blank.
2. Defining Vocab/Grammar
    a. Defining words
    b. Making a statement about correct grammar e.g. C: "I seed it" M: "You mean you saw it"